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THE

MANAGEMENT OF INFANCY AND CHILDHOOD,

IN

HEALTH AND DISEASE.

THE

MANAGEMENT OF INFANCY AND CHILDHOOD,

IN

HEALTH AND DISEASE.

BY

HOWARD BARRETT, M.R.C.S., &c.

LATE SURGEON TO THE POPLAR HOSPITAL, FELLOW OF THE MEDICAL SOCIETY, FELLOW OF THE CHEMICAL SOCIETY, ETC.

"Children sweeten labours, but they make misfortunes more bitter; they increase the cares of life, but they mitigate the remembrance of death."—LORD BACON.

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THE BROADWAY, LUDGATE.
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1875.

"Since Celia's baby was born, she had had a new sense of her mental solidity and calm wisdom. It seemed clear that where there was a baby, things were right enough, and that error, in general, was a mere lack of that central poising force." — GEO. ELIOT. *Middlemarch*, Book v.

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TO

WILLIAM FARR, M.D., F.R.S., D.C.L.

WHOSE LABOURS
HAVE DONE SO MUCH
TO DIMINISH THE
MORTALITY OF INFANTS AND CHILDREN IN THIS AND
OTHER COUNTRIES,

This Volume is Dedicated

AS A SMALL TRIBUTE OF THE HIGH ADMIRATION AND
RESPECT WITH WHICH HIS CHARACTER AND WORK ARE REGARDED
BY THE AUTHOR.

PREFACE.

THE following pages have been written from no weak yielding on the part of the author to the *cacoethes scribendi*, but simply, as it is believed, to supply a widely-spread, and, often, strongly-felt want.

In placing his work before the public, the writer cannot altogether extinguish a feeling of regret that the fertile field of inquiry which its subject opens up, had not been occupied by some abler mind, and that a more veteran pen than his had not portrayed it in a worthier manner. He does not lose sight of certain excellent existing works that treat of various *sections* of this subject in a manner which he can never hope to rival, but he believes that there is no popular handbook extant of the same scope, nor containing the same wide-reaching information on the Management of Infancy and Childhood, as this. Herein lies its *raison d'etre.*

The author has little to do in this place but to render his sincere thanks—a most inadequate acknowledgement—to those who have assisted him in the preparation of the work. The whole of the book, with the exception of the surgical part, has been carefully revised by a physician to two of the hospitals of this metropolis—one whose name is widely known in connection with the treatment of the diseases of women and children. To him the author's warmest thanks are given for his untiring kindness, for some valuable suggestions embodied in the text, and for others inserted as footnotes, with his initials attached.

The surgical part of the book has been revised by an eminent surgeon and lecturer on surgery attached both to one of the great metropolitan hospitals and to a hospital devoted to children. To him also the writer's best thanks are due.

He must also express the obligation he feels under to Dr. Farr, for the ready kindness and courtesy with which he has accepted the dedication of this book, and for the encouragement gained from his good opinion of it.

A debt of gratitude is moreover owed to the kind friend who has undertaken the labour of compiling the Index, and who has discharged this wearisome but important task so ably. Also to the brother of the author (Mr. Charles A. Barrett) who has constantly rendered the most efficient aid in preparing the sheets for the press. And lastly, the writer wishes to acknowledge, very fully, his obligations to those authors from whose works he has quoted.

The author has used great endeavours, and has spared no pains to make the book worthy of the position it aspires to take, and to render it *useful* in the best sense of the word. He is, nevertheless, only too keenly sensible of the fact that it contains very many imperfections; but in respect of them he claims the leniency of all critical readers, on the ground that these pages have been gradually filled in the brief moments of leisure snatched from active practice, and amid the hurry and disquietude of ever-increasing engagements. "Read," said Lord Bacon, "not to contradict and confute, nor to find talk and discourse, but to weigh and consider."

H. B.

3, TAVISTOCK SQUARE, W.C.

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CORRIGENDA.

In line 6 of paragraph 3. *For* "derogate" *read* "delegate."

Page 560, Section I. Heading. *For* "Disease of the Hip Joint" *read* "Disease of the Spine."

Page 451. Above the words Chapter XXX. *should be*

"DISEASES WITHIN THE ABDOMEN."

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Nursing Plan between pp. 202 and 203, to be so put in that it will open out *flat*.

THE

MANAGEMENT OF INFANCY AND CHILDHOOD

IN

HEALTH AND DISEASE.

INTRODUCTORY CHAPTER.

Like Monsieur Jourdain in Molière's play, who found he had been talking prose all his life without knowing it, so we, who have arrived at middle age, have for the most part been practising medicine and surgery for many years past, unconsciously to ourselves.

It is a fact, which my readers will probably be ready to admit, that it is quite sufficient for any one of them to complain of any pain or ailment, at once to have many remedies, all different, but all vaunted as infallible, pressed upon their adoption or acceptance by sympathising, though misguided friends. How much more is this true in the diseases and ailments of children! Nearly every mother considers herself in some sort a practitioner, in virtue of her maternity, and hastens with advice and remedies to the relief of the parent of the little sufferer. The advice is taken, and the remedies are put in force, possibly with additions from the legendary lore of some ancient dame, whom courtesy alone could term *a nurse*. Fortunate

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A true and exact knowledge as to the means to be adopted in these trying times, will convert a blind and unreasoning alarm into at worst a rational anxiety; vague errors into a tolerably assured information as to the real state of the case; while the inactivity of ignorance (so hard to bear) or its more dangerous busyness, will be changed to calm, intelligent, energetic measures—assurance instead of doubt; hope instead of fear. And beyond all this comes the tangible benefit and practical bearing of the case—the proper means having been adopted and at the earliest moment of time, by so much is the probability strengthened that the symptoms that so alarmed the mother and so prostrated the child may be speedily overcome. If this one object of these pages alone is gained, I shall feel I have not worked in vain.

Secondly. There is a very large class of ailments and apparently trifling disorders occurring during infancy and childhood, in which the majority of nurses and mothers have come to believe that it is unnecessary to summon medical aid. They think "the child will soon get well,"—that "it looks foolish to send for a doctor for such trifles," or they have a firm belief in their own resources of curative art (often but very ill-founded), and have a liking for a little amateur doctoring; but at any rate the child is either left to the healing power of Nature—which often is by no means a bad thing—or it is treated according to the unwritten and unreasoning code of Nursery Medicine. On the other hand, there are many who, upon any deviation from health in their children, however slight, call in medical advice at once; and if they can afford to indulge in this rational and consistent course they are perfectly right; and I do not hesitate to affirm that thousands of lives, afterwards valuable in the world, have thus been saved. What seemed but a passing derangement was the warning of the onset of mortal disease;

but trained observance noted it, and educated skill, having the inestimable advantage of being in time, quenched it at its source. But we must take things as they are, and I am perfectly aware that despite anything that I, or any other doctor may say, a large proportion of all mothers, and those who have the care of children, will continue through all time to treat the ailments—nay, nearly *all* the disorders of their offspring save severe diseases—by themselves. But in *every* case medical knowledge is indispensable. If, therefore, those I have adverted to will not have that which is best, the personal attendance of a doctor, let them accept that which is next best, his written advice as gathered together in a reliable guide,—shall I be thought egotistic if I say—as in this book before you. To such I appeal to exchange quackery and ignorance for the reason of science and the knowledge that has been tried and corrected by generations of enlightened observers. If the rate of infant mortality *is* alarmingly high, let us at least refrain from doing aught to increase it.

Thirdly. I have not lost sight of a large and perhaps ever-increasing class of country-men and women, the medical wants of whose children are for the most part unprovided for. There are those living even in this land, and in America, in remote country places, who are practically cut off from medical aid. So also are a large proportion of our colonists of Australia, Canada, New Zealand, and the Cape. But disease does not spare their children. It is for them, as for others, to watch with aching hearts by the fevered bed of a loved child; it is for them, as for others, to be racked with suspense and uncertainty; and more so, for they are without compass or chart on an unknown sea, knowing not what to do. And it is a terrible necessity for them, as for others, sometimes to stand by the little open grave, and bury there the sunlight of their days

with the tiny form, whose life medical art might have preserved.

To all these, then, I offer this produce of my leisure hours. A book of this kind, however complete and practical, is always a makeshift; but even a makeshift is vastly to be preferred to nothing—to ignorance, helplessness, injurious quackery, or the inactivity of despair.

Fourthly. My own favourite and principal end in writing is to give to all those who take an intelligent interest in the subjects here treated of, and who love knowledge for its own sake, as complete an insight into the maintenance of health and the remediability of disease in the early years of life, as the compass of this work will admit. Knowledge of this sort is indeed power—beneficent and priceless power: and withal of that character that seems to find a fit home in a woman's or a mother's mind.

Now that at last Animal Physiology and an acquaintance with the structure and functions of their own bodies is beginning to be taught to our children in the best regulated schools, it is not altogether Utopian to hope that the day may come when mothers of families may have a rational understanding of the general principles which guide us in medicine, and may recognize the paramount importance of the most careful sanitary regulations.

Fair listeners crowd the halls of Social Science gatherings, they sit numerous in the lecture-room at the feet of their Gamaliel of the hour, whether Gamaliel be represented by a Huxley, a Carpenter, a Kingsley, or a Tyndall. But to what end, if the old order of things is to go on and they are to remain in benighted ignorance of those objects of Nature which are nearest to them, the structure and functions of their own frame and those of their children, present or to come.

It is surely a monstrous thing that a girl's time at school

should be consumed in an attempt to learn arts and accomplishments for which Nature has often given her neither taste nor skill, that it should be considered essential to her future welfare that she should know all about co-ordinate sentences and the extension of the predicate, that she should have the exact height of Popocatepetl and a knowledge of the great watersheds of Europe at her finger ends, and that she should write a species of French not known in France, while she is permitted to remain profoundly ignorant of the structure of her own body and the nature of its simplest processes.

There are no subjects on which there is such an urgent call for instruction as Physiology and the Laws of Health. When they are taught in our schools to both boys and girls, and when they become generally understood *and acted on*, then, and not till then, the Infant death rate will lose half its frightful proportions, and the province of the physician will not be considered to be merely the *curing* of disease.

Some small degree of public attention has been drawn of late to a subject that is termed the Medical Education of Women. It is not for us to question the right of a few ladies to unsex themselves, and by thrusting forward into a profession for which, *as a profession*, all women are unfitted, to rub off that bloom of delicacy and refinement, and to lose that ineffable essence of purity and white-souled sensitiveness against defilement, which is the glory and charm of a true woman; but we may at least question the good taste, the utility, and the prospects of success of a movement which sets Nature at defiance. It is not the Medical Education of *the few* women for the benefit of the many that we want; but the education of *the many* for the benefit of themselves and of their children, of future generations, ay! of the future race. This is the *true* medical education of women, that enables them with feminine gentleness and tact to tend the sick as a wife, as a sister, or a mother. *This* is the true

medical education of women that will teach them something of the appalling waste of infant life year by year—that will instruct them in all fundamental sanitary knowledge, and show them how they may be the means of saving precious lives by better methods than physic; and that then will send them forth unostentatiously to do a work which none can do so well, and a nobler than which cannot be found. "Ah! would to God that some man had the pictorial eloquence to put before the mothers of England the mass of preventable suffering, the mass of preventable agony of mind and body, which exists in England year after year! and would that some man had the logical eloquence to make them understand that it is in their power, in the power of the mothers and wives of the higher class, I will not say to stop it all—God only knows that—but to stop, as I believe, three-fourths of it."*

I aspire in some of the following pages to add my humble aid to this most desirable end.

Lastly—inasmuch as a considerable portion of this book is devoted to the subject of the Preservation of Health, which is of infinitely greater importance than its Restoration, I claim for this section of it an interest in the mind of everyone who holds the responsible position of a parent. To the practical ignorance that prevails on the subjects of Food, Clothing, Air and Ventilation, Drainage, Ablution, Exercise, and Light, may be ascribed the notoriously great mortality of infants and children: and this fact admits of easy demonstration by reference to the statistics of the Registrar-General. "Of 1000 children born, 150 die within twelve months; 113 during the next four years; giving 263, or more than a quarter, within five years of birth. During the

* Rev. C. Kingsley. "Lecture on behalf of Ladies' Sanitary Association."

next five years 34 die; during the next five years 18 more die; so that at fifteen years of age only 684 remain of the 1000 born. Of those who survive, very many bear permanent marks of imperfect development, of defective nutrition, or of actual disease, due to maladies contracted in early life."* The following facts go to render this dismal recital more complete. More than half the deaths of children under five years old occur during the first year. Nearly one-fourth of all deaths in England is made up of children under one year. Scarcely more than three-fourths of all children born survive the end of their fifth year, and nearly one-sixth perish before the completion of their first year. The causes of this alarming mortality,—and alarming indeed it is when we see nearly one-third of our English race swept away before fifteen years have run—have been earnestly sought after, and are found—

First. In *improper* or insufficient diet.

Second. In defective sanitary management in the matters of Atmosphere, Ventilation, Drainage, Light, Exercise, Clothing, and Ablution (all these subjects are spoken of by Medical men under one term, "Hygiene"); and,—

Third. In hereditary disease, or vitiated constitutions transmitted from the parents. In fact, "so directly is infant life influenced by good or bad management, that less than a century ago the London Workhouses presented the almost incredible result of twenty-three deaths in every twenty-four infants under one year of age;"† and this horrible waste of life was permitted to go on for years almost unnoticed, the people of that day believing it to be an evil admitting of no prevention.

But with a better education on matters affecting health, this dreadful death-rate has been most considerably diminished. Let this be a lesson to us; and let us con-

* Dr. Hillier on "Diseases of Children."

† Dr. Tanner on "Diseases of Childhood."

sider how directly and materially a still more improved and widely spread intelligence on the laws of health will tend yet to diminish mortality; and do not think me tedious or prolix while I am earnestly urging upon the serious attention of all, means whereby thousands and tens of thousands of innocent lives may, with the blessing of God, be saved from an early and unmerited death.

Therefore, I say, think lightly or doubtfully if you will of the *curative* power of medicine—though rightly used it is in reality most powerful—but study with the most earnest care those means which are placed in the hands of most of us, whereby lives may be saved and preserved in health, and disease and death averted.

In the Second and Third Parts of the Work, whilst treating of the Diseases of Children, I have endeavoured to class the various orders of knowledge required on each, in a manner that will facilitate instruction as well as reference. Thus each disease will be considered from the following points of view. *First*, as to its cause, when any cause is known; *Second*, as to its symptoms; *Third*, as to the signs and symptoms by which it may be distinguished from other maladies resembling it—if any such exist—which is called by doctors "Diagnosis;" *Fourth*, as to the requisite nursing or maternal management; *Fifthly*, when treating of serious disorders that are more or less liable to prove fatal, I shall mention those decided symptoms by which the probabilities of a favourable or an unfavourable issue of the case may be calculated—which is called by doctors "Prognosis;" and *Lastly*, where any knowledge of the structure of the part affected is *essential*, I shall give a rough sketch of it to assist an intelligent comprehension of the subject.

It will occur to everyone who glances over these pages that a vast number of diseases are treated of and described

of which even the most sanguine and reckless amateur doctoress would never dream of attempting the management. And I admit it. For I trust no one who could for love or money get the services of a medical man, would attempt the care of a case of typhoid, of inflammation of the lungs, or of disease of the hip-joint, did any book discourse thereon never so wisely. But I have inserted them solely for the benefit of the third and fourth classes of readers mentioned by me on a preceding page, namely, those who are entirely cut off from personal medical aid, and those who read for the sake of instruction, and from the love of knowledge itself. Though the consideration of serious maladies such as these occupies much space, I am convinced that it tends to the completeness of this Practical Guide, and will add to its usefulness. It will be easy, however, to perceive, that in dealing with the diseases of infancy and childhood in a popular work like the present, I labour under difficulties so great as to prevent me from setting forth adequately and fully, either their symptoms, progress, or treatment. My sketches of them are like the map of a difficult country, which does not represent *all* the features of that country, and its distinctive marks by which one would instantly know it again, but which at least points out mountains, streams, and morasses, gives good travelling information about the road, and helps him, who can obtain no guide, materially on his way.

At the end of the book I have collected together into one place all the medicines and prescriptions recommended throughout the work. I would strongly dissuade my readers from attempting to mix any of these medicines themselves, unless a competent druggist is absolutely unattainable, for even with the clearest directions mistakes may arise. Let any prescription that is required be *carefully* copied out and sent to a chemist for preparation: but *no prescription should*

be used if one can be obtained from a medical man in actual attendance. They are but makeshifts, in case medical aid is delayed or cannot be had.

I have also appended a table showing the composition of many of those Patent Medicines that are at present most popular and in vogue. By means of this, the nature of some of them will be seen to be absolutely deleterious, whilst that of others is assuring from its extreme harmlessness.

There is at the end also, an appendix of Foods for Infants, and of extra articles of sick-room diet, which is simply a gathering together of all those adverted to throughout the book.

I have spared no pains to arrange the contents in that manner which seems to me easiest for reference ; and to conduce to this purpose, a very copious Index has been appended.

In conclusion—will my readers bear with me if once again I remind them that no book, however practical, however complete, can render them independent of the services of a trained and qualified Medical Man. In multitudinous ways, as set forth on a former page, I aspire to be very useful to the great English speaking section of our race—I am earnestly desirous to add my trifling contribution to the education of the public mind, to dispel prejudice and shed a little light through the Stygian darkness that surrounds medical subjects. If any of these objects are attained, I shall be more than rewarded for my pains. But let us remember that even with all knowledge of the healing art, and all care and diligence, still "'Tis not in mortals to command success," and that the issues of Life are in Higher Hands than ours. When the wisest measures have been taken, and the soundest counsel adopted, still Man is only the instrument, and it is God who "healeth our diseases and redeemeth our lives from destruction."

PART I.

ON THE MANAGEMENT OF INFANCY AND CHILDHOOD IN HEALTH.

CHAPTER I.

ON FOOD AND DIET.

SECTION I.—MILK.

BEFORE proceeding to speak of the *Food of Infants* in detail, it will be best to state briefly a few fundamental facts with regard to food generally.

In order to sustain life for any time, or adequately to nourish the body, food must consist of certain elementary parts in due proportion to one another. We must have food containing the chemical element Nitrogen,—of which gas a very large amount enters into the construction of the tissues of our bodies—and this may be termed Nitrogenous food; and we must also have non-nitrogenous food, or such as does not contain Nitrogen. The Nitrogenous part of our Diet is that which goes to make blood, to maintain the growth of the various structures of the body, and to supply the place of the constant destruction and waste of particles of our organization that is produced by every movement that we make and every thought that we think. The non-nitrogenous elements of food do not supply nourishment to the frame, but they do what is quite as important, they supply animal heat. Everyone knows that the human body as long as it retains life possesses a sensible degree of warmth. This temperature (98 degrees Fahr.) which we know by

the name of "Blood Heat," must always be kept up, and, excepting in disease (when it often rises higher and sometimes sinks lower), it is maintained without deviation at this point. But to have heat we must have combustion. And we have it, perpetually going on in our blood and in all the tissues of our bodies—not with fire and embers, but as an unseen chemical combustion quite as active, whose fuel is the non-nitrogenous food that we eat, and the waste, cast-off particles of our various organs. This, then, is the office of food that does not contain Nitrogen, to produce animal heat, not to nourish the body.

Then, of course, in addition. we must have an aqueous or watery portion in our daily food, to keep the blood and different fluids of our bodies supplied in due quantity and to facilitate digestion. Thus we find that we require

1. Nitrogenous, Plastic, or Blood-making food.
2. Non-Nitrogenous, or heat-producing food (under which heading are included) (*a*) Fatty matter, (*b*) Saccharine matter, (*c*) Starchy matter.
3. Mineral Salts.
4. Water.*

In order that the diet of a child (or, indeed, of any human being) should be healthful and best adapted for sustaining life, all these various elements of food should be suitably combined. None should be omitted, nor should any one occur in unnatural excess.

Neither fat, starch, gelatine, nor sugar are in any degree nutritious, in the strict sense of the word; they are necessary to the proper performance of the respiratory (or heat-making) functions, but they contain no nitrogen, and cannot

* For the sake of rendering this more familiar to readers unversed in chemistry, examples of these various elementary foods may be given. Thus: *Nitrogenous or plastic food* is represented by the "casein" of milk or the "gluten" of bread, or by eggs; *Fatty matters* by fat of meat, butter, or cream; *Starchy matters* by arrowroot, potatoes, rice, sago, &c.; *Mineral salts* by common salt, &c.

be formed into any tissue of the body, except white fibrous and fatty tissues. Therefore a child's food should not consist too exclusively of these elements—represented by butter, arrowroot, jelly, &c.—but should have its various constituents judiciously balanced.

But we find everyone of these essential elements of food combined in the exact proportions, and ready to our hands, in the common article of diet, Milk. *Milk, then, is the type of a perfect food;* it is the model that Nature has supplied us with (and the only one), after which to construct for ourselves others. Let us observe what it is composed of:—

Analysis of Human Milk.* 1000 Parts.		
Water	—	889.08
Sugar of Milk	Solids	43.64
Casein		39.24
Butter		26.66
Salts		1.38
		1000.00

In this table the word "casein" will be noticed.† This is one of a group of principles of food, occurring in animal and vegetable substances, all strongly resembling one another, and all Nitrogenous or blood-producing elements. Some others are "albumen," occurring in eggs,—"fibrin," in meat,—"gluten," in wheat flour,—and "legumin," in peas and beans. So that in Milk—the typical food—we find all the essentials of a diet: the casein or blood-maker; the sugar of milk and the butter or cream (both non-nitrogenous), the heat-producers; the salts; and a large portion of water.

And there is another beautiful provision of Nature, which

* Vernois and Becquerel.

† It is so called from being the basis of cheese or curd. Latin, caseus.

should be noted. An infant, for whom Milk is designed as the aliment, from its helplessness can of course take no exercise; and thus one important source of animal heat is closed to it. But to so frail and delicate an organism the proper maintenance of this heat is most important, and accordingly we find by reference to the above table that the heat-producing elements of food are present in milk in excess, —70 parts in 1000 (43 of sugar and 27 of butter) to 39 of blood-making food or casein—and thus the child's heat is developed from his food, since it cannot be from exercise. But as time goes on and the child becomes stronger and more capable of exerting his muscles, the mother's milk becomes richer in casein and proportionately poorer in cream, the amount of sugar remaining nearly the same. When he needs animal heat, the food of Nature supplies him with it, and when in course of time he needs what will make more blood and produce growth, his food supplies him with this also. The milk of the brunette is richer than that of the blonde, as the following analysis of 1000 parts of the milk of each clearly shows :—

ANALYSIS OF MILK OF WOMEN OF DIFFERENT TEMPERAMENTS.*

Constituents.	The Blonde.	The Brunette.
Water	892.00	853.30
Butter	35.50	54.80
Casein	10.00	16.20
Sugar of Milk	58.50	71.20
Salts	4.00	4.50
	1000.00	1000.00

These facts have a practical bearing when we come to consider the subject of "bringing up by hand," and wet nursing.

* L'Heritier. From two females both twenty-two years of age, and both adopting the same diet and mode of life.

SECTION II.—NURSING.

IF a woman had not been intended by her Creator to nurse her own infant, we may take it for granted that the means of doing so would never have been provided. Instinct as well as Nature attests the universality of this law.

In the whole animal kingdom I doubt if there is any object so utterly helpless as a new-born infant; dependent for everything, weak and aimless in its movements, crying with only half understood misery at the unaccustomed

derogate this their clearest duty and their dearest p... to a hireling, is constantly diminishing. It needs no argument of mine to prove that no nourishment is so fitted to produce the sound and healthy development of the child as its own mother's milk; there is a natural suitability between the two which any other arrangement fails to realise. The conduct of those who from mere fastidious whim, from a selfish care for their own convenience, or from a love of society and a desire to continue in fashionable life without hindrance, omit this maternal duty, cannot be too strongly censured; always supposing that they are *healthy*, and in every way fitted by Nature to discharge this function of maternity. But these ladies should not lose sight of the fact that their unnatural self-indulgence *may* be fruitful in evil consequences both towards

themselves and their offspring. For whenever Nature imposes a law of this kind, she causes certain advantages to accrue to those who obey it; whilst those who do not, are apt to have to pay the penalties of their folly. And in the case of a mother nursing her own infant, neither the advantages of doing so nor the disadvantages of leaving it undone, are by any means to be disregarded.

The advantages gained by nursing both for mother and child are mainly these :—

(1) That during the period termed "the lying-in month" the tendency to evil consequences is materially lessened. This tendency is very strong in some women.

(2) That in the majority of cases, during the whole period of nursing, the mother's health is sounder and stronger than almost at any other time. This fact does not apply if nursing is continued *too long*, an evil perhaps more positive than not nursing at all. Instances are familiar to me and to all doctors, of delicate young women, previously frail and ailing, becoming blooming and healthy under a well regulated course of nursing. I am not sure but that I have seen it avert or postpone attacks of hereditary disease.

(3) The tendency to Cancer of the Breast which exists strongly in the constitution of some women is certainly diminished by nursing. The opinion of the accomplished surgeon, Sir Astley Cooper, went to confirm, if it did not originate, this view. He says,* "It is undoubtedly true that breasts that have been unemployed in suckling in women who have been married, but are childless, and in those who have remained single, are more prone to malignant (or cancerous) diseases than those of women who have nursed large families."†

(4) Nursing has some power in preventing the occurrence

* "On Diseases of the Breast."

† I am aware that the opinions of some men of large experience are adverse to this view; but the balance of evidence lies on the side of the statement I have made.

of pregnancy during the time the child is at the breast. In certain constitutions this amounts to an absolute and safe protection, especially amongst the wealthier classes, whilst in others it seems to have but little influence. Mr. Roberton's observations show that more than fifty per cent. of the women of the lower classes in Manchester become pregnant whilst still nursing.

(5) There are also the *benefits conferred upon the child.* His health is sounder,—he thrives better—he is less liable to be fretful from digestive troubles, wind and diarrhœa—and indeed it is difficult to over-estimate the beneficial effect upon his development that nursing from a healthy mother, with a good supply of milk, has over any other method of feeding. The following table will give some general idea of the truth of this statement.

How the Children were fed.*	Percentage or No. in every 100.	How Developed.
With breast milk alone to nine months or longer; some to 15th, 18th, or 24th months.	62·6 23·3 14	Good development. Medium ,, Bad ,,
With breast milk moderately abundant, and "food" together with it, from birth or early ages.	57·4 25·6 15·9	Good development. Medium ,, Bad ,,
From birth a small supply of breast milk—some for a few months only, others up to 9, 12, 15, or 18 months—with other food from birth.	26·8 26·3 45·9	Good development. Medium ,, Bad ,,
Entirely by hand; no breast milk at all.	10 26 64	Good development. Medium ,, Bad ,,

* I have compiled this table from one quoted by Dr. Routh (see "Infant Feeding," pp. 25 and 26) from the reports of Doctors Whitehead and Merei, of the Hospital for Diseases of Children, Manchester.

(6) Moreover, nursing has a distinct protective influence over the child, in warding off the attacks of disease (and possibly in indefinitely postponing them,) and more especially of that formidable diseased condition termed scrofula or struma. In his charming Lectures on Medicine, Sir Thomas Watson observes,—"Infants at the breast, supplied with good milk and with plenty of it, seldom show any signs of scrofulous disorder; whereas, as soon as they are weaned, they become subject to various complaints of a strumous kind." Hence if there be a suspicion of any hereditary predisposition to scrofula in an infant, and if the mother be free from it, healthy and capable, she is bound to nurse that child, and to nurse it as long as it thrives well, in order to give it the best possible chance for life and soundness.

The disadvantages of a mother not nursing her child lie in her rendering herself more liable to certain dangers. For instance:—

(1) During the lying-in month, the risk is materially increased of distension of the breasts, fever, and abscesses, which by the extremely debilitated state in which they leave the system are very apt to lay the foundations of future maladies of a more dangerous kind.

(2) The suction of the breasts has been found to have a decided influence in producing contraction of the womb, thereby lessening the chance of hæmorrhage, (or excessive and weakening "discharge,") and promoting a speedy and safe convalescence.

(3) If this contraction of the womb (which the suction of the breasts has so great an influence in promoting) does not take place, the organ remains large, heavy, and unwieldy, giving rise to copious and exhausting leucorrhæa (or "whites"), "bearing down" pain, backache, and a train of miseries. Other maladies also are liable to happen—such as displacements or flexions of the womb, sufferings which make life a burden.

(4) The reverse of all the advantages, stated above to be gained by nursing the infant, is liable to be incurred.

But there are without doubt many cases in which a mother has no choice in the matter; cases in which she *ought not* to nurse, lest she should inflict injury upon herself or her offspring.

The circumstances under which a mother should not nurse may be briefly summarised thus :—

(1) She must not nurse if she be a woman of an extremely excitable and sensitive constitution, unless she is able to control her feelings and calm her excitement. Strong mental emotion of any kind seems to have an unexplainable but real influence on the character of the milk, of a prejudicial kind. Parmentier and Deyeux relate an instance in which the milk of a woman suffering from great mental emotion, became in less than two hours almost transparent, and also viscid like the white of egg, and only became natural again when the emotion had subsided.

An extreme instance of this, is as follows. It has been often quoted. "A carpenter fell into a quarrel with a soldier billeted in his house, and was set upon by him with his drawn sword. The wife of the carpenter at first trembled with fear and terror, and then suddenly threw herself furiously between the combatants, wrested the sword from the soldier's hand, broke it in pieces, and threw it away. During the tumult some neighbours came in and separated the men. While in this state of strong excitement, the mother took up her child from the cradle where it lay playing, and in the most perfect health, never having had a moment's illness; she gave it the breast, and by so doing sealed its fate. In a few minutes the infant left off sucking, became restless, panted, and *sank dead on its mother's bosom.* The physician, who was instantly called in, found the child lying in the cradle as if asleep, and with its features undisturbed; but all his resources were fruitless; it was irrecoverably gone." * That some subtle morbid change is produced in the body by strong mental emotion is rendered probable by

* "Die ersten Mutterpflichten und die erste Kindespflege" (p. 102). Dr. Von Ammon.

the fact that the flesh of animals that have been excited before death, by torture, over-driving, &c., has often proved unwholesome or poisonous. Liebig relates an instance ("Letters on Chemistry") where a family of five persons suffered serious illness by eating the flesh of a roebuck which had been snared and had struggled violently just before death. Fits of passion or even a hasty temper, extreme timidity and fright, may produce results similar but less terrible—slow and gradual, but nevertheless certain, disorders rather than sudden death.

(2) If she is suffering from any severe constitutional disease, such as puerperal, or any other fever, abscess of breast, &c. &c.

(3) If she is in a state of extreme debility, or with a constitution deteriorated from any cause, so that her milk is apt to be poor and insufficient, and the drain upon her own system dangerous.

(4) If she suffers from, or has a strong predisposition to, insanity, epilepsy, scrofula, consumption, or any hereditary disease. If the tendency to scrofula or consumption be only slight or incipient, I would not dissuade her from attempting to nurse, for the reason stated on page 18.

(5) If the secretion of milk be poor and watery, deficient in nourishing properties and incapable of improvement by diet and management: the best test of the quality of the milk being the condition of the child. If it thrives, the milk cannot be bad. But a woman may have an abundant supply of milk, and the child nevertheless become emaciated and feeble. The *quality* of it is at fault, not the quantity; it is poor in either all of its constituents, or at least in one of them, in casein, sugar, or cream, and if diet and healthful measures will not improve it, she must wean the child.

(6) If it be so scanty as to be nearly useless, or if the nipples are retracted and buried in the breast, she *cannot* nurse.

But supposing that the mother chooses to undertake the

pleasing duty that falls so naturally to her, and is capable of performing it, she should not forget that there is a

Method of nursing as of doing nearly everything. The exact time at which an infant should be first put to the breast is a point on which "doctors differ." My own opinion, backed by that of many of the highest authorities, is in favour of doing it not long after the child is washed and dressed, and the mother made comfortable in bed—unless after a first confinement, when it may be prudent to wait for two or three hours. If a child will take the breast thus early, the nipples become more readily formed, and the influence of its sucking expedites the secretion of milk and causes, as previously stated, increased contraction of the womb, thereby diminishing the quantity and duration of the discharge, and the chance of actual hæmorrhage or "flooding." It is practice for the infant, and does good both to mother and child.

There is a practice rife amongst nurses, of giving the newborn infant castor oil, which is as unnecessary as it is cruel. When its bowels become distended by the first milk or food it swallows, this of itself will usually be sufficient to cause them to act; and the chance of its doing so is increased by the fact that the first milk secreted by the mother, (or "colostrum,") usually possesses laxative properties. Hence the advantage of putting the child to the breast early.

During the first eight or nine weeks of life, the infant should be regularly nursed every two hours during the day, and every three or four hours through the night, the mother using her breasts alternately each time. As the child grows older the intervals may be gradually increased to from three to four hours during the day, and from five to six at night. It is important for the sake of both that the mother should have definite and adequate rest, for sleep during the night, and for restoration of strength during the day. But she

cannot hope to have this, if she yields to the too common practice of giving the child the breast every time it cries or seems ill at ease; forgetting that "wind," an over-loaded stomach, an irritable skin, and other troubles than hunger, are frequent causes of lamentation to an infant; and that her ever-ready remedy may often rather add to than pacify its discomforts and wailings.*

But after a first confinement (and with many women after later ones) no milk is secreted until the third or fourth day. No harm can be done, but rather good, by applying the child to the breast at intervals all the same, but it receives nothing, and therefore an artificial but temporary diet must be had recourse to. This should not be gruel or any farinaceous compound, (which many nurses ignorantly give,) but should resemble the mother's milk as nearly as may be. Perhaps the best may be formed by mixing one-third of fresh cow's milk with two-thirds of warm water: sweeten it with a little loaf sugar, or better still, with sugar of milk, and let it partially cool. A *small* quantity of this may be given at short intervals by teaspoonfuls, *not* by the bottle. For the milk flowing more easily through the artificial teat than through the breast, the child will afterwards with more difficulty be persuaded to take the latter. The child will not starve. If it was necessary that it should be fully fed at once the milk would be secreted earlier to meet such need.

The use of the Feeding Bottle in addition to the Breast.—In the case of many nursing mothers, as time goes on, the quantity of their milk diminishes and it becomes necessary to supplement the infant's diet by some

* We must not forget in considering this subject the moral training of the infant. If it gets the breast whenever it cries it will learn to cry in order to obtain all it wants, and the mother by such indulgence, which is really selfishness to hush the child, lays the foundation of much misery in its up-bringing.—H.S.

additional feeding. The mother may still nurse as far as she is able, but in addition must give her child (say) two or three times a-day, according to the amount of milk she has herself, a small quantity of artificial food, the staple of which should always be milk. Doctors are accustomed to hear loud and ignorant protests against "the mixing of the milks," but the theory as to the evil of doing so is by no means borne out by facts. If it becomes necessary to supplement the mother's milk by other food, I would advise the following mixtures at the respective ages named :—

TO MAKE AN ORDINARY FEEDING BOTTLE FULL, HOLDING ABOUT EIGHT OUNCES.

	3 Months.	6 Months.	9 Months.
New Cow's Milk	Half.	Three-quarters.	All.
Water (Hot) .	Half.	One quarter.	None.
Sugar of Milk .	1 Teaspoonful.	1½ Teaspoonful.	2 Teaspoonfuls.
Lime Water .	2 ,,	1 Tablespoonful.	1 Tablespoonful.

During the first few months farinaceous food of every kind should be avoided, for the child's stomach cannot digest it. Until the third month, or even later, no saliva is secreted, and without this floury foods cannot be assimilated. They also tend to prevent the proper purification of the blood at this period of life, by reason of a chemical property they possess, which it would be irrelevant to explain here.

But in some cases, after the sixth month, the addition of some farinaceous foods to the milk may become advisable; and my readers will find information on this point and on the various articles thus used, under the head of "Bringing up by Hand" (p. 39). But let no one think that in ordinary cases and with fairly prudent management, such ill results as

are gloomily foretold in old wives' fables concerning "the mixing of milks," will ever happen.

Wet Nurses.—But it may so happen that from one of the causes enumerated (on pages 21 and 22) the mother is unable to suckle her child at all: or an attempt to bring the child up by hand may have failed and been attended by perilous emaciation and diarrhœa. In the former case, especially when the infant is delicate, perhaps the best substitute is a wet nurse, and in the latter case there is no alternative. If there were fewer difficulties and risks about the procuring of proper wet nurses, and if the disadvantages connected with them when obtained were less, I should speak more decidedly, and say that *undoubtedly* the best substitute is a wet nurse.

The disadvantages of one, however, are certainly great. It is but seldom that a respectable married woman will hire herself in the capacity of wet nurse, and our choice consequently lies for the most part among fallen women. I should wish to be among the very last to cast a stone at the frailties of these poor creatures so deeply to be pitied; but it is useless to blink the fact that although there are many exceptions, yet the majority of them having lost all self-respect, their natures become perverted, their instincts low, and their morality vague and debased. Who, then, can wonder at the shrinking that a pure-minded lady so often feels from introducing such an one into her house, to be almost of necessity her frequent associate and the foster-mother of her child.

No one knows so well as a doctor in practice, how difficult, nay almost impossible it is, to obtain reliable information about wet nurses applying for situations. In any inquiry concerning her previous immunity from disease, and her family history, no answers are usually obtainable but those that she herself supplies. Impure disease may

even then be lurking in her blood, inherited or acquired; it is by no means easy always to prove it. The date of her confinement and the consequent age of her milk, (an important point hereafter to be mentioned,) may be widely different from what she states; you cannot prove her false. It is a case in which one must perforce exercise complete trustfulness in one who, unfortunately, often proves so little to be trusted. Even their very capability of nursing well, has almost to be taken on trust. Many of them, it is well known, previous to their examination by the medical man, refrain from milking their breasts for twenty-four hours, so that when he sees them they appear full and overflowing; while in reality their secretion is most scanty. I have known many instances in which this has occurred. The breasts *seemed* full and active, the milk when tested was good, and the children appeared satisfied and very tranquil after nursing. But they lost flesh and pined away to shadows, and it was discovered that their nurse had in reality very little milk, and that their tranquillity was the stupor of opium, administered to prevent the detection of her fraud.

"On one occasion when I was seeking for a wet nurse, a woman presented herself to me; she had, she said, been confined three months, was married and had had two children before. The milk appeared good and I selected her. It turned out she *was unmarried*, had not had a child for a twelvemonth, and to keep the infant now in her charge quiet, drugged it. Another woman who had just been delivered, stated she had only been seduced some ten months back. I found she had cohabited with a *roué* for two years, and had had two miscarriages previously."—*Dr. Routh.**

If it be a first fall from virtue that is the cause of a woman seeking employment as a wet nurse, *her inexperience*

* I knew a woman who took *five* consecutive situations as wet-nurse in six years after *one* pregnancy.—H. S.

in the management of an infant will be a serious drawback to her usefulness; but if a second or third fall occasion her condition, the question will arise whether she ought to be received into any respectable house, or be placed amongst pure-minded servants. If she should be a *married* woman who has had previous children, the mother will have to be on her guard lest ignorant superstitions and hurtful prejudices be reduced to practice in the management of the infant,—and lest a sudden freak of the husband should lead the nurse to forsake her charge at a moment's notice.

I need hardly expatiate on *the influence of a wet nurse in a household.* All my lady readers, who have a house and servants, will be able readily to fill in this wide reaching item of my subject. I need but to remind them of the existence of it.

But even though a lady should be so fortunate as to secure a wet nurse with all proper qualifications, of unimpeachable character and reliable capacity,—as she believes,—it is nevertheless necessary that she closely watch her; how much more so, in the case of one who is not so strongly recommended. Lastly, I would advise all who wish to inform themselves more in detail on this topic, to read Dr. Routh's excellent seventh chapter in his book on "Infant Feeding."

The qualities requisite in a wet nurse, when it has been determined on to employ one, are mainly these:—

(1) She should be between twenty and thirty years of age—not older.

(2) She should be of temperate, active, and cleanly habits, and of a placid, cheerful, and good-natured disposition.

(3) Her skin should be free from all eruptions and

blotches; her teeth and gums sound; with a clear tongue and inoffensive breath.

(4) Her constitution should be healthy and strong, and free from all taint of hereditary or acquired disease; especially from scrofula, and from that impure and insidious malady by which so many of her class are afflicted.

(5) The breasts should be firm (not fat), rather hard and knotty to feel, and well developed, but not too large, with good nipples; the milk abundant and of good quality. Good milk is of a bluish white colour, sweeter than cow's milk, and forming plenty of white cream on standing.

(6) It is best if a wet nurse can be obtained, the date of whose confinement tallies as nearly as possible with that of the mother, for as time goes on, the milk becomes different in quality from the early milk, viz., richer in casein.

(7) If she becomes "unwell" while nursing, she is thereby much disqualified for the duty. This is especially the case if the "periods" come on early in her course of nursing; if they do not supervene until the eighth or ninth month, it is not of so much consequence. The occurrence of this function in a nursing woman nearly always deteriorates the quality of the milk, or diminishes its quantity, or does both one and the other. An ignorant belief is prevalent among many that the milk is "renewed" and improved from month to month by the recurrence of the catamenia or "periods"; hence wet nurses are rather apt to glorify themselves on this fact than to conceal it. This occurrence of the periods during suckling is also an undoubted predisposing cause to the development in the child of the disease called "rickets." Dr. Tilbury Fox says, as the result of his observations, that whenever a rickety child has been entirely dependent upon his mother's milk, the mother will be found to have been "unwell" regularly for several months; and the degree of

rickets will be usually in direct proportion to the frequency, duration, and amount of the periodical discharge.

(8) If it be possible, let one be selected who is not only healthy in body, but *healthy in mind.* Arguments are not needed to prove the desirability of this qualification.

When possible, the mother should request her medical attendant to select a wet nurse for her; as the greatest care, tact, and caution are required in the selection, in order to insure good results.

The treatment of a nurse while suckling, both mental and physical, and whether she be mother or wet-nurse, exercises an important effect on the well-being of the child. A very great deal of ignorance prevails on this subject; so that it may be well if I sketch out some general rules, and allude to some general errors, for the guidance and caution of my readers.

The diet of a nurse should be simple, nourishing and digestible, and *such as she is habitually accustomed to.* It should not be too plentiful,—a healthy appetite kept a little under control is the best guide as to sufficiency,—and meals should be taken at definite and stated times. There are many who act as if they thought it impossible to cram one who is nursing too severely with food and drink. The appetite of a ploughboy, and the digestion of an ostrich, would be required to keep pace with the vastness of their diet table. Nothing is more unnecessary or hurtful. A good nurse requires but little more than her ordinary food; and a bad nurse can seldom be converted into a good one by the quantity of her feeding.

If more food is taken than can be easily digested, the nurse becomes feverish, and her milk unwholesome, irritating to the child and diminished in quantity. The indiscretions in diet of nursing women, both as regards quantity and quality, are the most fruitful source of stomachic

derangements with infants, causing incessant fretfulness, wind, sickness, diarrhœa and ultimate emaciation.

This is very frequently seen when a child is fed by a wet nurse. The nurse, when at home, has been accustomed to live plainly and often poorly, and very often to work hard as well. She becomes installed in her new office, and at once enters into a land of Goshen. She is fed largely, and from the fat of the land, and is allowed and encouraged to drink illimitable porter, and to lead a life of utter indolence.

What wonder if her digestion breaks down under this altered condition of things, and that her impaired health is reflected in the waning aspect of her little charge!

There is also a popular superstition in favour of large quantities of stout, porter, or other stimulants. It is stated that "they make milk." When taken in any but the strictest moderation, they do nothing of the kind; they make heat of blood, indigestion and acidity, irritable nerves, and an aching head instead: and in consequence, a piteously disordered nurseling.

Unless a woman is accustomed to take some stimulant, in the majority of cases, in order to nurse well, she does not absolutely *need* any at all, if her appetite and digestion are good; at any rate during the earlier period of her nursing.

But in the case of delicate ladies, or those who cannot eat well, or who are accustomed to some stimulant or other as a regular article of diet, there can be no possible objection to a moderate amount of such malt liquor as is found to suit each one best. A pint during the twenty-four hours should be sufficient; and any one who required more than a pint and a half, I should consider almost unfitted for a nurse at all. Dr. Tanner recommends claret as the best stimulant for nursing mothers, or wet nurses; it is much to be preferred to port or sherry, and it certainly does seem to have

an effect in producing a speedy flow of milk. Good stout has also deservedly found favour with mothers and with medical men. Draughts of new milk are a most useful drink to nursing mothers; or if it be not palatable to some in the simple form, it might be taken in the French preparation of "café au lait."

But it may be laid down as an axiom, that all mothers and wet nurses who are fairly strong and healthy, will nurse best (for themselves and the infant) while feeding on such wholesome diet as they are regularly accustomed to, not greatly exceeding the usual amount in quantity, excepting in the matter of fluids, which need only comprise, in the majority of cases, a sparing amount of alcoholic stimulant.

Habits of the utmost cleanliness should be punctiliously practised by those who are nursing. Both refinement and delicacy would suggest this; but the subject is within the scope of medical advice, from the great and direct benefit to the health that such habits produce. Ablution should be practised, however, not only with a view to maintaining purity of skin, but also to gain the strengthening and invigorating effect that it has on the nervous and circulatory systems, and through them upon the whole organism. To those who have a vigorous circulation, and are capable of creating a good subsequent re-action, the cold or tepid shower bath will be most useful; but it is not everyone who can bear this, and by those who cannot, cold sponging may be used instead, and the good effect will be enhanced by the addition of some sea salt to the water.

An unfailing test of the benefit or otherwise of cold water bathing, lies in the answer to this question. After bathing and briskly drying yourself (and in many cases even before the drying process is commenced), do you feel a warm invigorating glow pervade you, a strengthening of body, and vivacity of mind? If you do, go on with the cold bath,

it is doing you good. But if you do not,—it instead, you feel chilly, numbed and miserable, leave it off and try some milder and warmer method of ablution. I have heard it frequently and gravely asserted, that those who are nursing should not employ cold baths, and should be very careful how they use cold water at all,—that it is dangerous, liable to give cold and arrest the secretion of milk. This is a prejudice that has its origin (as most prejudices have) in ignorance. Cold bathing, for those who can bear it, is in every way promotive of health and of the active performance of all organic functions; and neither theory nor practice leads us to suppose that the function of secretion of milk is an exception from these.

Exercise is another very important item in the maintenance of the health of one who is nursing. Violent exercise or over-exertion would probably diminish or vitiate her supply of milk, by exhausting nervous powers; but moderate daily exercise in the open air is essential to the preservation of her health—and of that of every one. It braces and invigorates the body, strengthens the digestion, and is a natural and healthy stimulant to the circulation, besides seeming to have in most cases a direct influence in accelerating the flow of milk.

But apart from out-of-door exercise, a nursing mother should not lead an inactive, indolent life, still less should a wet nurse, who has probably been accustomed to hard work. We were all born to work, each according to his or her strength and ability; and it is very certain that ladies who imagine that the nursing of their child frees them from all other duties, who find everything but the graceful lounge, the afternoon drive, and a general well-bred lassitude, too *ennuyant*, are liable to discover their mistake by its results of impaired health, and a probably enfeebled offspring. Indolence and languor, always most detrimental to mind

and body, are never more so than during this period. *Regular employment* is the broad highway that leads to happiness as well as to health.

Sleep, and plenty of it, is essential to the well-being of a woman while nursing. She must have it. Without it, or if it be broken and taken only in naps, she lacks her principal and most reliable restorative. Her digestion becomes impaired and her nervous system irritable—and possibly her temper also. If the infant is persistently restless and troublesome in the night, so that sleep becomes difficult to obtain, it is advisable that he should be entrusted to the care of the nurse, who at stated intervals would bring him to his mother for nourishment. It is only fair, however, to the child, to say that persistent restlessness almost always has a cause that an intelligent mother, who is *properly* educated in infantile ailments, will not fail to recognise and remove by correct means.

Late hours, either in the evening or the morning, are to be avoided;—in a word, let a nursing mother avoid all artificiality of living; let all her habits be simple and formed after the teachings of Nature. Before, however, I quit the subject of Nursing, there is one other important point that I should allude to; I refer to—

The evil effects of unduly prolonging the period of suckling. The bad effects are most felt by the mother, but as they are also felt by the child, a description of them here is called for.

When a mother feels any of the following symptoms, she is right to conclude that she has nursed too long:—excessive weakness, a feeling that every effort, however trifling, is too much trouble, extreme and unaccountable depression of spirits, a disposition to cry from mere exhaustion and undefined unhappiness, palpitation of the heart, tremor of the nerves, black specks before the eyes, a constant "sinking"

at the stomach and dragging pain in the back and loins, loss of appetite, constipation of the bowels, and sometimes giddiness and "singing in the ears." If the cause that is creating these miseries is not removed, others ensue; pallor, to wit, emaciation, dimness of sight, and exhausting perspirations by night.

Now there are two classes of cases in which these results of excessive suckling appear, and the cases in the first and larger class are only too common. It is not likely that many of those who read these pages, would be inclined to suckle their infants for fifteen or eighteen months, or two years, and thus earn themselves a place in this class; but there are great numbers of women, chiefly of the poorer classes, who make a practice of endeavouring to do so, and sometimes for an even longer time, in the hope of retarding the increase of their families; a hope which (as we have seen *) is but too often disappointed.

The second class comprises those rarer cases, in which delicate women of feeble vitality, and who have sometimes been exhausted by rapidly recurring confinements, suffer from all such symptoms of undue suckling as are narrated above, while yet their infant is perhaps but one, two, or three months old.

In either case the remedy is the same, and both simple and decisive. The child must at once be weaned. Half measures seldom succeed; though it is always beneficial for the sufferer to take a generous diet, and such preparations of iron and quinine as may be most suitable as restoratives. But the only *cure* is weaning, as far as the mother is concerned.

But our business is now with the child. We have seen the catalogue of evils brought thus upon the mother; and her unfortunate infant fares scarcely better. It falls off in appearance; its firm plump roundness, its healthy colour

* Page 19.

and placid contentment are gone, and an emaciated, wizen and pallid little being is left, with soft and flabby limbs, distended stomach and sunken eyes, old looking, and continually wailing with a painful, unsatisfied cry. All this is from simple starvation; the mother's strength is exhausted, her health impaired, her power of producing milk either good or sufficient in quantity has departed, and what she now secretes is little better than water.

Under such circumstances it is both wrong and reckless, as regards herself as a mother, to continue suckling; and it is cruel as regards her child.

If the child is very young (say under four months) or seriously reduced, the only effectual means of restoration will probably be at once to procure a healthy wet nurse; if, however, he be older or only beginning to suffer from defective nutrition, careful and judicious hand-feeding (see page 39) will in most cases be successful, and attended by good results. But the fact that the child has been brought into this weakened condition by starvation, unintentional though it be, renders him perilously liable to the various forms of arrested development, and is apt to engender disease, or to foster and strengthen any morbid tendency already present in his system. Therefore mothers should be acquainted with the possibility and nature of this evil; being forewarned of it, surely they will be forearmed.

Section III.—Weaning.

We are thus naturally brought to speak on this subject; of the period when it should be commenced, of the circumstances that should determine it, and of the manner in which it should be performed.

In such matters as these that I am treating of, it is impossible to lay down rigid and inflexible rules;—the majority of medical rules have many exceptions;—but Nature gives

us a sure and accurate guide as to the time when weaning should commence. The child's teeth begin to appear about the seventh or eighth month (a little earlier or later sometimes), and he is fairly well supplied with them by between the ninth and twelfth months. This is a sufficiently strong indication that the time for nursing is over. His teeth are given him for another purpose than that, and he may now be fed upon food which the fact of their presence, and the increased muscularity and development of his stomach, enable him to digest. Therefore, for *healthy* children, I would fix the proper period for weaning at some time between the ninth and twelfth month, or whenever the greater number of the "milk teeth" are cut.

Moreover it should be borne in mind that the catamenia, or "periods," recommence with the nursing woman usually from the twelfth to the fourteenth month, and we have already seen (page 29) the evil effects produced on the milk by the occurrence of this event.

The principal exceptions to this rule lie: (1) in the case of the delicate mother, who suffers early from suckling, who is unable to bear the drain upon her system, and who is obliged to wean earlier than this time; and (2) in the case of the frail and delicate child whose teeth are late to appear, and who may sometimes be benefited by a slightly longer continuance of breast milk, provided it be good and rich and the mother strong and hearty.

The circumstances that should determine a mother to wean her child, or to defer that step, may be briefly summarised thus—

(1) If the mother or the child are suffering from the nursing, whether the one from the exhaustion of her strength, or the other from defective nutrition, owing to the poorness of the milk—weaning should take place at once.

(2) If the infant has cut several of its teeth at an *earlier*

age than the ninth, tenth, or twelfth month, and is strong and healthy, it may be weaned, irrespective of its age; but if, on the other hand, the eruption of the teeth is delayed beyond the usual time, this is indicative of a certain unreadiness of the constitution for other food than milk, and weaning had better be delayed: always presuming that the mother is able to continue without detriment, and has a good supply of milk.

(3) It is not advisable to wean a child in the midst of the irritation of teething.

(4) If an infant have an apparently strong predisposition to strumous disease, or if one born of a scrofulous or consumptive parent can be suckled by a strong and healthy wet nurse, it will be advisable to continue the breast-milk as long as the child thrives upon it, or as long as mother or nurse can bear it.

As to the method of weaning a child, it only remains to observe that it should not be done too suddenly. The transition from the mother's milk to other and more substantial food should be rendered easy, and, as it were, almost imperceptible to the stomach of the child. Thus too, the mother is saved from pain and inconvenience. An exception to this rule will at once occur to my readers in those two classes of cases (mentioned on page 35), in which the sufferings from over lactation render it necessary to wean the infant at once and suddenly. When the "milk teeth" begin to appear, or at the seventh or eighth month, a small amount of some food additional to the breast milk, should be given. I would recommend pure cow's milk (*i.e.*, without water), milk with the addition of arrowroot, made very thin, or what I confess to preferring in my own practice, milk prepared in the same way with "Chapman's Wheat Flour."*

* *Where a child is delicate, strumous, inclined to rickets*, or though not having itself manifested any delicacy, is one of a family whose charac-

There are besides, many other suitable varieties of food that I shall advert to when speaking of "Bringing up by Hand." But whatever food is selected as supplementary to the breast, it should at first be given only in *small* quantities; which as time goes on may be gradually increased, while the amount of nourishment derived from the mother is proportionately diminished. Thus, when the time for entire weaning comes, the breasts will be found to be secreting but little milk, and the process of arresting it altogether will be painless and easy.

SECTION IV.—BRINGING UP BY HAND.

From much that has gone before, it is evident that there are many cases when circumstances unavoidably prevent the mother from nursing her child, and also from procuring a wet nurse. Nothing therefore remains but that he be brought up by hand.

The method of feeding until the appearance of the teeth, or during the first seven or eight months of life, naturally therefore engages our attention now. Milk must still be the diet, and we must endeavour to produce artificially, as close an imitation as possible of human milk. Such an imitation I believe to be represented by the food recom-

teristic has been want of robustness, it will be advisable in the process of weaning not to make too sudden a transition from animal to farinaceous food. Until the teeth are fairly forward, the structure of the stomach and intestines of the infant, as compared with other animals, approximates more to the carnivorous than to the herbivorous type. It therefore follows that the infant should be fed with that kind of food for which it is structurally most adapted. Hence I would advise *in such cases as I have above indicated*, that a very small quantity, say a table-spoonful, of good beef tea should be added to the child's mid-day bottle, and that this quantity be very gradually increased, until the child, still having milk as its staple article of food, is able to take a cup of beef tea for its dinner. This will greatly invigorate it, and will tend to forward the process of dentition.—H. S.

mended on page 25, where in a tabular form I have mentioned the various proportions in which the ingredients should be mixed, according to the age of the infant.

Human milk is alkaline, but cow's milk, especially the milk of stall-fed cows, is often acid;* the lime-water mentioned in the table (page 25), is used to correct this and to prevent the derangement of stomach, indicated by sickness and flatulence, which feeding on milk of an acid character is so liable to produce. Sugar of milk is preferable to any other form of sugar for infant's food, and for these reasons—it is the form of sugar prescribed for the newly born by Nature; it contains all the salts of milk as well as the sugar; it lessens the chances of diarrhœa occurring, and checks it if it exists, and it is less liable to undergo fermentation than ordinary sugar. It can readily be procured of any respectable druggist, and is not expensive. The water that is added to the milk need not be boiling, nor should the milk be boiled; a temperature of about 97° Fahr. is the proper one for the food, and is sufficient for the youngest and most delicate infant. On the other hand it should never be given cold to any child under six months old,—mother's milk is not cold, and we must copy that in all particulars. Boiling the milk deprives it of much of its salts, which, together with some of the casein, form a film or curd on the surface; it also destroys a volatile principle existing therein, (nature unknown,) which evidently is not without a beneficial effect upon this fluid as an article of food,† and

* It is a good plan to keep some slips of light blue *litmus paper* in the nursery, with which to test whether the milk is acid or not. If the milk is acid the light blue paper, when dipped into it, will turn more or less decidedly pink; a change which will not take place if the milk is alkaline or neutral. If the milk proves to be acid, it must either be not used, or lime water must be added to it till it ceases to turn the litmus paper pink.

† Parmentier and Deyeux.

which may be regarded (if I may coin an expression) as *the life* of the milk. Of course the milk should be used as fresh as possible, and unskimmed, and only a small quantity of the preparation mentioned above should be made at one time; just sufficient to supply the immediate wants of the child, but no more.

I would here, also, remind my readers that at this period no farinaceous food should be given: I have stated the reasons why it should not be, on a former page (page 25), and need not recapitulate.

The general rules that I have laid down (on page 23), as to the proper intervals at which a child should be nursed, hold good with regard to its feeding.

The usual practice is, I am aware, to place a bottle full of milk in the cot with the infant, and having put the mouth-piece of the tube in its mouth, to leave it to help itself, trusting thus to avoid trouble and to quiet the child by a perpetual solace. But the lazy way of doing a thing is always the most troublesome in the end; and it is so here. The little one (like many of its elders) knows nothing of the capabilities of its own digestion, and usually takes its nourishment so rapidly, and in such quantity at one time, that the stomach rejects the overload, and the mother concludes that the milk has disagreed with it; and so it has, but by reason only of the *quantity*, and the manner of its administration. Or again, the child having emptied the bottle, often continues sucking, and draws in quantities of air, to its own pain and detriment. Therefore it is best to feed a baby at definite intervals, and to watch it meanwhile.

It is very difficult to give precise or useful directions as to the *quantity* to be taken at any one time; the capacity and needs of different children are so variable. Merely as a generalisation, it may be said that the proper quantity is from

an ounce-and-a-half to five, six, or eight ounces according to the age and power of digestion of the child.

I am not entering into a needless detail in speaking of *the position* of the child whilst being fed. This should be the erect or semi-erect posture. Very many mothers and nurses are in the habit of laying the baby on their lap on its back, sometimes with its head hanging down, and feeding it whilst in this very unpleasant attitude. Have they ever considered what their own feelings would be, if they were required to swallow a quantity of liquid similarly situated? But there are other disadvantages than discomfort, from feeding while recumbent. The milk is apt to "go the wrong way" and produce a temporary choking; moreover, when the child is in the upright position, the stomach is placed in the best position for receiving and retaining food, and any strain upon its upper (or cardiac*) orifice is thus avoided. In infancy the stomach is but weak, and if it be filled with fluid, while the body is in a horizontal posture, the contractile power of the cardiac orifice is often too feeble to retain its contents, and prevent their gravitation outwards again. In a word, the child vomits.

Of course an infant should always be kept very warm, but more especially so during or after feeding; and for this reason. During digestion a rush of blood takes place towards the organs employed, in order to maintain the activity of the process; and of necessity the surface of the body is thus deprived of part of its supply, and becomes proportionately colder. Many adults, whose digestion is active, are aware of a feeling of chilliness after a good meal.

The Feeding Bottle.—An infant should be fed from a feeding bottle and not from a spoon.† The act of suction

* So called from being the nearest opening of the two that the stomach has, to the heart—"cardia."

† Except in the case of the new-born child, who (as directed on p. 24) is to be temporarily fed with a spoon, and not with a bottle.

is good for it, and it is the method *of Nature;*—it develops the muscles, and allows the food to be taken more gradually, and as soon as saliva begins to be secreted, it promotes its flow, thereby aiding digestion. Almost every month some new feeding bottle is patented, and amongst the number, so slightly differing from one another, it is difficult to select one and pronounce it the best; suffice it to say that a good bottle should allow of its being placed in any position without permitting the milk to escape; it should admit of the supply of milk being regulated while in use by the infant; it should not allow of the possibility of air being taken in with the food; and it should be simple and handy in shape, and easy to be kept clean.*

A bottle of strange and curious appearance has been devised by Dr. Routh, and is not without some merit under certain circumstances. It is somewhat breast-shaped, and can be *worn* by the nurse or mother upon the chest, being kept in position by a band or handkerchief. To this bottle the patent stop-cock of Mr. Cooper, of 26, Oxford Street (by whom the bottle is sold), is applied. "This last is so constructed as to prevent the child from taking down air with his food, and thus those pains from flatulence, so common in children, and often so distressing, do not occur. This bottle has two openings in it: one, which is for the use of the child when very young, has no stop-cock, but a tube and a small nipple of india-rubber; the other, to be used when the child is older, has stop-cock and tube also, but a larger nipple. The child,

* The ordinary shilling bottles are to be avoided; for it will be seen that each time the child ceases sucking for a minute, the column of milk drops down to the level of the milk in the bottle, necessitating a long pull of air, before the child can get the milk up again.

Every good bottle, of whatever shape, should have a valve in its feeding tube. One of the best is the fountain feeding bottle, Tiernan's patent, made by Maw, with a leech-bite nipple. With this, the action of pinching the nipple brings up the milk, so that the child can take its food easily, yet not too fast.

[*Note to Purchasers.*—People often think they have the right bottle because it is Maw's. But as Maw makes the majority of feeding bottles, it is as well to remember the name, or stipulate that the feeding-tube has a valve.]—H. S.

on taking the food out of such a bottle, is placed in the normal position, and at the same time kept warm by the female."—(*Dr. Routh.*)

Occasionally there is great trouble in inducing a child on being weaned to take the bottle, and it is proposed by this device to delude it into the fond belief that it is still receiving the breast. I have known it to be successful, but usually the child has far too much discrimination and good taste to mistake a hard glass bottle for the soft warmth of its mother's bosom.

Whatever bottle is used, fastidious cleanliness should be observed with it; it is best always to have two in use at a time, so that one may be scalded out and kept in fresh water, while the other is in possession of the infant.

The Milk of the Ass and Goat.—But frequently the milk of the cow does not agree with the child,—its stomach rejects it persistently, and it evidently does not thrive upon its use. It then becomes necessary to try the milk of some other animal. Our selection will be the more easily made, and will be more likely to be followed by good results, if we study briefly the composition and character of those milks most generally in use.

TABLE OF COMPOSITION OF THE MILK OF WOMAN AND VARIOUS ANIMALS ARRANGED IN THE ORDER OF THEIR RICHNESS.*

	1000 Parts contain		The Solids consist of			
	Fluid.	Solid.	Sugar.	Casein.	Butter.	Salts.
Ass. . .	890·12	109·88	50·46	35·64	18·53	5·24
Woman .	889·08	110·92	43·64	39·24	26·66	1·38
Cow . .	864·06	135·94	38·03	55·15	36·12	6·64
Goat . .	844·90	155·10	36·91	55·14	56·87	6·18
Ewe . .	832·32	167·68	39·43	69·78	54·31	7·16

From this we see that asses' milk in many respects

* From Vernois' and Becquerel's analyses.

approaches most nearly in its composition to that of woman; the total amount of heat-producing and blood-producing elements is respectively nearly the same, but the quantity of sugar is a little greater, and that of casein a little less. This quality fits it for administration to very young infants of feeble vitality. There is no doubt that from some cause, (possibly the quality just mentioned) it is more purgative in its action than cow's or goat's milk, but this is easily obviated by adding about one-fifth or one-quarter of lime-water to what is used. Indeed, without this precaution, in very many cases it is apt to give trouble by curdling in the stomach in large indigestible lumps. The addition also of three teaspoonfuls of cream to the pint, improves it as an article of infants' food, and brings it nearer to the standard of human milk, by supplying its deficiency in this respect.

Thousands of infants, whom cow's milk utterly failed to nourish, have been rescued from imminent inanition, and rendered hearty and strong by the use of asses' milk. It seems particularly adapted to weakly children of irritable stomachs, who have been deprived of maternal sustenance.

Some of its good effects may be due to the fact that it is usually obtained quite fresh, the animals being milked at the door of the purchaser.

Goats' milk is but little used in this country, though largely in Switzerland and Italy and elsewhere. It has the disadvantage of a rather strong and unpleasant aroma, but it forms an admirable diet, and children reared exclusively on it usually thrive remarkably well. It is richer in solid matter than any milk hitherto mentioned, and inferior only in this respect to that of the ewe, which latter however is but very rarely prescribed.

The Adulteration of Milk and the modes of detecting it.—The most important and frequent adulteration of milk is that with water. But the large quantity of

water that is often added to it renders it necessary for further adulteration to be practised, in order to retain as far as possible the usual characteristics of milk. Thus treacle must be added to sweeten it, salt to bring out its flavour, and annatto to colour it. Starch, brains, and chalk, also turmeric, gum tragacanth, soda and decoction of boiled white carrots, have been detected in milk by various analysts. A practice that can scarcely be termed adulteration, but which is most detrimental to the value, is commonly in force; namely, to remove a part or the whole of the cream, and to sell the skimmed milk mixed with some fresh milk, as whole milk.

Twelve years ago (1861), Dr. Hassall made twenty-six analyses of London milk. Twelve were genuine or nearly so. Fourteen were adulterated, and contained from one-tenth to one-half of water.

To detect Water in Milk.—This may be effected by ascertaining the "specific gravity" (as it is termed) of the suspected milk with a hydrometer, or by ascertaining the amount of cream with a lactometer.

There are many forms of hydrometers in use, but the glass one shown in figure 1, or the vulcanite one that is now common, are as good as any for the purpose, and cost very little. It will be observed that in the tube of it, is a scale graduated in degrees. If this hydrometer is dipped into a jug or basin of pure milk, and allowed to float freely in it, it will sink in it until the surface of the milk stands at about the 30th degree of the scale; it may be one or two degrees higher or three or four degrees lower and yet be pure, but if the instrument sink to a point on the scale lower than 26 degrees, that milk is watered, and the lower it sinks the more water there is. The point to which the hydrometer sinks is the "specific gravity" of the fluid under trial. The specific gravity of water is 1000, and that of milk about 1030, which means that if a certain bulk of water weighs 1000

grains, the same bulk of milk will weigh 1030 grains. I give the following table as an approximation, to the determination

FIG. 1. *

FIG. 2.

of *how much* water any sample of milk may contain :—

If the Hydrometer marks the specific gravity of the Milk at	There is present of Water in 100 parts of the fluid.
1030 or 30 on scale.	None.
1026 or 26 ,,	About 15 parts.
1023 or 23 ,,	,, 20 ,,
1018 or 18 ,,	,, 35 ,,
1015 or 15 ,,	,, 45 ,,

* The figures on the scale in the tube which are represented as 0, 10, 20, 30, &c., really stand for 1000, 1010, 1020, 1030, &c., but are shortened for want of space.

The presence of water in milk can likewise be estimated by the lactometer (figure 2), which shows us whether the proper amount of cream is contained or not in any given specimen of milk. It is merely a glass tube eleven inches long and half-an-inch wide. Ten inches of this ought to be graduated in tenths of an inch: but some that are made are only graduated in their upper two inches (as in figure 2). This tube is to be filled with milk up to the degree on the glass marked 0, and set aside for twelve hours. The cream ascends to the surface, and the amount of it may be read off in degrees, from the scale on the tube. The thickness of the layer of cream after standing, ought to be from 8 to 9½ degrees of the scale. If it contains less than 8, it has probably been tampered with, or is certainly not rich milk. The result of either of these tests taken by itself is hardly conclusive, but if *both* tests show the milk to be faulty, their combined evidence is reliable. This is shown by the fact that a combination of the use of the two instruments (known abroad as "Müller's Method,") is the test that settles all disputes in Swiss law-courts as to the quality of milk.

Milkmen state (and they practise what they preach) that the addition of a little warm water to milk increases the quantity of cream. It does no such thing, but merely hastens and assists its formation and separation.*

To detect Sugar or Treacle.—Curdle the milk with a little acetic acid: then simmer at a gentle heat until nearly all the whey is evaporated,

* Of the two methods of testing the purity of milk, the latter, or that by observing the comparative thickness of the layer of cream, is by far the best. There is a method of adulteration (so bad as to be shameful) that defies detection by the hydrometer. If water is added to milk it is made lighter thereby, and such is shown by the hydrometer, but if the cream, which is the light part of the milk, is *also* removed, the specific gravity of the mixture may not be far from the standard of pure milk. The double sin is by this means less easily found out than the single offence.—H. S.

and notice the colour of the residue. If it is dark, sugar is probably there. Dissolve the residue in water, add a little yeast, and keep it for some hours at a temperature of from 70 degrees to 80 degrees Fahr. If fermentation ensues, sugar has certainly been added to the milk.

To detect Starch.—Curdle, and then evaporate some of the milk down to a very small quantity, as in searching for sugar—and add to the residue a drop or two of Tincture of Iodine. If starch is present, this will cause the formation of a deep indigo blue colour.

To detect Chalk.—Dilute the milk with water, and then set it aside for some hours. If any chalk is there, it will have fallen to the bottom in a thin layer. Its appearance will betray its nature, but to make sure, collect it by means of filtering, and add some muriatic acid or vinegar, when brisk effervescence will take place.

To detect Annatto.—Boil down a portion of the suspected milk, until a very small residue is left. If this has a reddish or orange red colour, Annatto is probably there. But if the addition of a drop or two of acid renders it purple, or if an alkali (such as carbonate of soda) make it even redder, the evidence is confirmed.

I believe the adulteration of milk to be practised on a scale greatly less than formerly; but it remains to be seen whether the Adulteration Act of 1872 will extinguish it altogether.

Preserved Milk.—Within the last few years an article of diet, under the name of Preserved or Condensed Milk, has been brought largely before the notice of the public; and as I know it to be frequently used for the food of babies, I think it right to mention it here. It has been repeatedly said to me by patients, "Is it not best for me to use the condensed milk for my children, since I find it impossible to get good and genuine fresh milk in London?" and the answer to this question cannot be given in a word. If it ever be *impossible* to obtain good pure milk in London or any other large town, most undoubtedly it is better to use the condensed, than adulterated or diseased milk. But I believe that it is now quite possible to obtain genuine milk in London or anywhere, and if this *can* be obtained, no

preserved milk, however good, should ever take its place; and only as a *pis aller* (merely as regards children) can I recommend it to mothers. I should consider an attempt to rear a child upon this milk an experiment not unattended by risk, though in a few instances I have seen it done (not by my own direction) without any ill results. Indeed, many among the poor do use it, and others who are imbued with the idea that "mixed milks" are injurious. My objections to it as a food for children, where fresh milk can by any means be regularly procured, are founded on the degeneration that milk must of necessity undergo in the process of condensation, however carefully performed, and on the amount of cane sugar that this compound is known to contain. The heat that is used in the preparation of it (175° Fahr.) produces alteration in the casein; its long continuance is apt to induce changes in the sugar, and destroys the aroma and volatile principle before mentioned. Various analyses * have shown that a one-pound tin of the condensed milk contains nearly five ounces of common sugar, added as a preservative: when diluted with the requisite quantity of water, this becomes about two ounces to the pint of milk. Surely a great deal too much to give to a child. This sugar does not occur in natural milk, and when present in such quantity as this, is extremely likely to disorder a child's stomach, producing acidity, flatulence, vomiting, and consequently impaired nutrition.

The condensed milk in the English market is chiefly supplied by two companies, the Aylesbury and the Anglo-Swiss. It is only just to the former of these to state that a report of the process of manufacture, and of the nature of their produce, published in the *Lancet*, speaks highly of the care taken, and of the superior quality of the milk used.

* For one, see *Lancet*, September 7, 1872.

Cream and Eggs.—Compared with milk, cream contains less casein, more butter or fatty matter, and somewhat less sugar. Cases occasionally occur in which neither breast-milk nor the milk of any animal will suit an infant. It persistently vomits them all alike,—its stomach is constantly acid,—it falls off in appearance, and no management, howsoever judicious, seems likely to avert a melancholy fate. At such a crisis the administration of cream has often been attended by the best results, bringing about the complete recovery of the emaciated little sufferer. It should be given in the proportion of one part of cream (say two ounces *) to three parts of warm water (six ounces), and with half an ounce of lime-water added to every eight ounces of the mixture. The lime-water tends to neutralise acidity, and to promote the more easy digestion of the fatty matter.

I have known *eggs* to be given to infants, and only mention the practice here in order to condemn it. In cases of wasting disease, it may often be right to give a mixture of egg beaten up raw with milk, and this will be indicated, wherever advisable, in a future part of this book. But infants either in health or disease are utterly incapable of digesting *boiled* eggs, or of benefiting by them.

Section V.—Method of Feeding at the Time of Teething and afterwards.

This period usually commences at about the seventh month, and terminates at between the eighteenth and twentieth, by which time the canine teeth (popularly called the "eye-teeth") are usually cut. But the mother must not regulate the time of change of the baby's diet by *its age*, but by *its readiness of system*. As a rule, the appearance of the first teeth within the gum is the signal to make the first

* It will be useful to remember that one tablespoonful is equal to about half an ounce.

change, and the appearance of the "eye-teeth" apprizes her that it is time to begin the second. It is a period often troublesome and beset with danger to the child, and full of anxiety to the mother, during which the utmost watchfulness and care are demanded, and in no particular more than in the diet.

Milk, as before, remains the basis and chief ingredient of the child's diet; but if previously to this time it has been diluted with water, the dilution should cease and he should have it pure, unskimmed, and fresh. But in most cases some farther addition to the nutritive power even of fresh milk will be required, and we gain this usually by mixing with the milk some farinaceous (or floury) substance. A very great many of these are in use; but not greatly differing from one another, save in the names of the patentees by whom they are manufactured and advertised. "The so-called *Farinaceous Foods for Infants* are only baked flour sometimes sweetened with sugar" (Letheby on Food). It is a fact too well known to mothers to need mentioning, that a food which suits one child, utterly disagrees with another, and that in the choice of one for her own infant, she must be guided by her own experience, if she have any, or if not, by that of her medical man. However, in the list of

Foods Suitable for Infants during the period under consideration, she will not fail to find *one* that will be adapted; and it will be well when one *is* found upon which the child thrives and prospers, that it be persevered in and not changed for a mere whim, or at the recommendation of any friend, whose baby may be achieving prodigies of growth and forwardness on some other species of food. *Always "let well alone."*

Baked Flour.—This is very good mixed with milk: and it suits and is sufficient for the majority of infants. The

flour should be baked until it becomes a light brown colour (at a temperature of 400° or 450° Fahr.). Sometimes, however, it causes slight constipation; but this is readily overcome by the addition of a little oatmeal, in the proportion of one part of oatmeal to two parts of flour. For the method of preparation of this and all succeeding foods mentioned, I refer my readers to the Appendix of Foods at the end of the book.

In the various flours of grain, we find the nitrogenous or nutritive, and the non-nitrogenous or heat-producing elements again present, as in milk. Here the nitrogenous element is called "gluten," and is that part of the grain which remains in the hand as a viscid, sticky substance, when dough is thoroughly kneaded and mixed with water. The heat-producing elements are starch, a substance named dextrin, sugar, and fatty matter.*

All these fresh ingredients added to the child's food, are precisely those which Nature now requires to carry on his growth, and effect the consolidation of his frame; and having commenced with a very small amount, the quantity of them given should be gradually increased as he grows older. All *flours*, when used, should first be baked, and for

*Analysis of Wheat, Rice, Barley, and Rye.

	Whole Wheat.	Barley.	Rice.	Rye.
Water	13·6	13·90	7·3	14·7
Starch	60·8	48·06	83·0	65·1
Dextrin and Sugar	10·5	7·62	—	—
Gluten	12·5	13·18	7·5	12·5
Oily matter	1·1	·34	·7	2·0
Fibre	1·5	13·34	1·0	3·3
Salts	—	3·56	·5	2·4
	100·00	100·00	100·00	100·00

Compiled from analyses of Peligot, Fresenius, and Boussingault.

these reasons:—The baking of the flour separates its particles, facilitates its more complete permeation by the gastric juice, permits of its afterwards mixing more readily with milk, and of its making a more diffluent and less lumpy liquid, and one more easily digested than if used raw. But baking is chiefly necessary, because thereby the granules of starch which the flour contains, are thus broken up, and converted into the soluble substance "dextrin." The starch, as such, is extremely liable to pass through the digestive system unchanged, and is therefore wasted, but by its conversion into dextrin, it is all rendered capable of being taken up into the blood, and is made available for nutrition.

With some of these varieties of farinaceous food, boiling is preferable to baking, and, if long enough continued, answers the same purpose. Whenever any of them are used and mixed with milk, the mixture should be thin, such as can be sucked through the tube of a bottle, diffluent, creamy, and free from lumps or sediment.

Chapman's Wheat Flour.—I have met with extremely good results in practice from the use of this, which I believe to be merely whole wheat meal. Many children get, perhaps, *too* fat upon it. It should be given with milk and sweetened.

Revalenta.—There is more than one patent food sold either under this name, or that of Ervalenta; and one of them at least, has been puffed in a manner calculated to disgust all educated or intelligent persons. Innumerable virtues have been claimed for it that it by no means possesses. It is not, however, without either merits or demerits.

Its basis is Lentil Flour, which approximates more closely in its composition to milk, than probably any other farinaceous substance. It is, perhaps, most useful for children of

irritable stomachs and feeble digestion, whom I have occasionally seen retain it and thrive upon it when other articles of diet had failed. Its peculiar taste is against it; but if well made and sweetened, I have known little ones to get fond of it. Dr. Hassall examined three samples of Du Barry's Revalenta Arabica, and found them all to consist of a mixture of the Arabian lentil flour with barley flour: one of them containing sugar also, a second, salt, and the third, neither. The cost is 2s. 9d. per lb. My readers, if inclined to try this food, may make it for themselves at a cost of about threepence a pound; thus:—

Take of Arabian lentil flour, 2 lbs.
„ Barley flour, 1 lb.
„ Salt (or sugar), 3 oz. or less
Mix into a uniform powder.*

Tops and Bottoms, Rusks, and Robb's Biscuits.—All of these are very useful for infants' food, and the fact of their having been baked gives them all the advantages that we stated were conferred on flour by that process. In London the preparation known as "Robb's Biscuits," is especially popular, and I find that it is quite suitable to a large number of children. But I am aware of no intrinsic merit that would lead me to prefer any one of these three articles to the other two (see Appendix).

Liebig's Food for Infants.†—This food was devised by the great German chemist, as the closest imitation of milk in its composition, that it was possible to make with vegetable ingredients. The proportion of blood-forming and heat-producing elements is just the same as in mothers' milk (namely, one of the former to 3·8 of the latter), while

* Dr. Hassall.

† The solid part of this food can be obtained ready prepared of Hooper, chemist, Pall Mall East, or of Cooper, 26, Oxford Street, and of most first-class chemists.

the amount of saline matter is also the same. Though planned in accordance with theory, it succeeds admirably in practice, and fully answers the purpose intended by its talented originator. I could wish that it was in as common use, and had as high a reputation as an infants' food in England, as it has in Germany. It consists of wheat flour, malt flour, and a little bicarbonate of potash, added to cows' milk. (For mode of preparation, see Appendix.) The malt flour is added to the wheaten, in order to convert the insoluble indigestible starch of the latter, into soluble nourishing sugar, and thus the food becomes thinner and sweeter as it stands. The bicarbonate of potash assists this change, and neutralises the acid constituents of the flour and malt. The food is usually slightly laxative; but I should hardly reckon this a fault.

Arrowroot.—Since this consists almost entirely of starch, which has very little nutritive value, and possesses only heat-producing properties, it is *not* well fitted for the food of a strong, hearty, growing child. But in practice it seems particularly adapted (I cannot tell why) for temporary administration to infants of weakly digestion, and disordered stomachs and bowels. It is possible that the smooth starchy liquid may have a soothing demulcent effect upon the irritable mucous membrane lining those organs (see Appendix).

Corn Flour.—This is the flour of maize or Indian corn. It is very rich in oily matter, and contains much the same proportion as wheat, of starch and nutritive matter. But it has naturally a harsh flavour. This, however, together with part of its gluten, is removed from the various preparations in use in England. That patented by Brown and Polson is the best. By the addition of milk and sugar in the same way as with the other flours, it may be converted into a most useful and palatable food, and seldom fails to nourish and

agree with children who are fed upon it. A recipe of Francatelli is given for its preparation in the Appendix.

Bread Jelly.—This is recommended, and the recipe for making it given, by Dr. Churchill, as a good food for infants at the time of weaning; but I am unable to speak of it from experience. (See Appendix.)

There is, however, a defect in nearly all these Farinaceous Foods as nourishing articles of diet, which should not be overlooked. It is this. The *Bran*, of whatever grain they may be made, has in most cases been removed. But the Bran is an essential part of the grain to nutrition. It contains twelve per cent. of Gluten (the flesh-forming principle), —it contains an element, called cerealin, which acts as the ferment and digestive of the starch and gluten of the grain, —and it contains the earthy salts, phosphates of lime and magnesia, which are so necessary to the proper development and consolidation of the bones; therefore, when possible, a flour or meal should be used that contains at least *a portion* of the bran.

But here again we are sometimes met by a difficulty. The coarser kinds of flour containing the bran are occasionally much too laxative for some children habitually to use as food. But chemistry comes to our aid, and in a preparation brought forward by Mr. Morson* we obtain all we require. It is called "*The Saccharated Wheat Phosphates*," and contains these salts and the cerealin of wheat, together with a good proportion of sugar. In fact it may be regarded as *bran* deprived of its husky or irritating part. Dr. Tilbury Fox recommends the addition of this compound to the food of weakly, rickety children, or in cases where the digestion is impaired; but it would also be useful in all cases of defective nutrition or wasting. *Mode and Dose.*—The Wheat Phosphates may be given as sugar, mixed with the food in

* 31, Southampton Row, W.C.

the bottle, or in bread and milk, or on bread and butter, two or three times a day, in half tea-spoonful doses at first, gradually increased if no heat of stomach is produced.

Some other Proprietary Alimentary Preparations.—When examined by Dr. Hassall, the following preparations were found to be of the composition here stated.*

Gardiner's Alimentary Preparation—was merely very finely ground rice. *Very innutritious.*

Leath's Homœopathic Farinaceous Food—was a mixture of wheat flour, slightly baked potato starch, Indian corn meal, tapioca, and sugar. *Of no special value, and unnecessarily complicated, and bearing no relation whatever to Homœopathy so-called.*

Semolina.—Some samples consisted of the gluten of wheat, mixed with wheat flour ; others, of certain descriptions of wheat flour only, rich in gluten.

Bullock's Semola.—The gluten of wheat with a proportion of wheat starch.—*Both of these are very good preparations.*

Hard's Farinaceous Food—consisted entirely of wheat flour baked.

Prince of Wales' Food—consists entirely of potato flour. Patent Farina Company.

Before I close my remarks on Farinaceous Foods, I will advert to one beneficial property that they all possess in common : and to a very prevalent popular error. It is a most usual thing for mothers to think that their children's stomachs are out of order, or that the milk they are taking is bad, if what they bring up (and babies *will* be sick sometimes) is *curdled.* It *ought* to be curdled. If it were not, anxieties as to the infants' health might be justly entertained.

As soon as the milk enters the stomach, it is coagulated by the "gastric juice" or digesting fluid that we all possess, which is equivalent to the rennet of the calf's stomach, used in the dairy for the self-same purpose. But sometimes the milk may become coagulated in large indigestible masses;

* See "Adulterations Detected in Food," p. 333. Second edition.

and this, the admixture of some flour—if the child is of an age when it may be given—prevents or lessens. The effect of the flour or meal is to *separate* the milk, as it were, and to cause the formation of curds in shreds instead of in masses, perhaps by the intervention of the particles of starch between the particles of casein. Thus, by the gastric juice being allowed to act over a much greater surface, the food is obviously rendered far more digestible, and consequently more nutritious.

Regulation of Diet to be often preferred to Medicine.—Let us bear in mind that the period of infant life, of which this section treats, is the one during which the troublesome and often dangerous process of teething is taking place, when diarrhœa, bronchitis, convulsions, or skin eruptions are apt to occur as its concomitants, besides numerous infantile diseases common to the earlier months of existence, that only too often supervene. It will be easily seen, then, with what judgment the diet should be selected, and with what care it should be watched. Even with the most perfect diet, unless the mother possesses intelligence, and exercises an unremitting oversight, a baby's digestive system will sometimes—nay, often—become deranged. When this occurs, she must not suppose that the next thing to be done is to physic her child. An alteration in the character or quantity of its food is far more often called for, than the administration of the nostrums of sapient druggists or aged nurses.

Undue relaxation of the bowels may often be controlled by giving rice boiled in milk unsweetened, or arrowroot treated in the same way, or a mixture of arrowroot, water, milk, and cream as described (No. 2) in the Appendix. Sago thoroughly boiled in very weak beef tea will often have the same effect. Constipation may be met by having recourse to Liebig's Food for Infants, or the addition of a

little oatmeal to whatever farinaceous food is being used; or, often the mere change from the food in use to almost any other, will suffice.

Wind and griping pains in the stomach are most frequently due to the infant having been overfed; a condition that has probably been aggravated by offering him more food every time he cried, not with hunger, but with repletion. It scarcely needs a doctor to suggest that the simple remedy is to give him less. A little aniseed water or peppermint water, and one or two drops of sal volatile, might be added to his food. Sometimes a little pinch of bi-carbonate of potash, or a little lime-water, gives relief, and the effect of any of these dietetic remedies is enhanced by a short immersion in a warm bath.

But let me sum up this advice in the simple caution—*Never give medicine to a young baby, if you can possibly help it, and at any rate always try dietetic remedies first.*

Section VI.—The Diet of Childhood.

Hitherto we have been considering the diet of Infancy; and since this period is comprised within the short space of the first two years of life, tolerably definite and precise rules can be laid down for its regulation. But now that I come to speak of the much more extended term of childhood, my task becomes more difficult, and my advice more general and liable to exception. If my readers will bear in mind that childhood is a vague and indefinite term, under which may be classed children of two years and those of eight or nine, and moreover that during the period signified by it the constitutions, habits, and physical capabilities of individual children vary even more widely than in infancy, they will see that I can do little more than place before them generalisations, advice, and information on those articles of diet that should be principally in use, and such regulations as are applicable more or less to children of every age.

The quantity of food that young children will not only take, but absolutely require, is out of all proportion to their age and size. Dr. Edward Smith has calculated that the proportions of Nitrogenous and Carbonaceous (or heat-producing) matter in the daily food at different ages should be somewhat thus :—

DAILY PROPORTION OF BLOOD-MAKING AND HEAT-PRODUCING FOOD AT DIFFERENT AGES, FOR EVERY POUND WEIGHT OF THE BODY.

	Nitrogenous, or Blood-making.	Carbonaceous, or Heat-producing.
	Grains.	Grains.
In Infancy	6·78	69
At 10 years old	2·81	48
At 16 years old	2·16	30
At Adult Life	1·04	23
In Middle Life . . .	1·13	25

—"so that for its weight the child requires three times as much carbonaceous food, and six times as much nitrogenous as an adult."* At the tenth year a child will require half as much food as a healthy woman (or in proportion to its weight, twice as much), and at the fourteenth, quite as much. Nor can we wonder at this when we reflect upon the continuous call that exists in the young, for nutritive matter wherewith to build up and consolidate the frame.

Every day of our lives we are putting in practice the teachings of science without knowing it, but seldom more so than when we arrange a proper and well-balanced dietary for our children. As I have so often previously observed, there are two main classes of food ; one, absolutely nutritive, and the other, heat-producing and only indirectly nutritive ; and until something is known of the various commoner articles

* Letheby on Food.

of food, as to which class they belong, it will be impossible intelligently to specify a child's diet, or to do otherwise than make shots in the dark. These shots in the dark, it may perhaps be suggested, have answered fairly well hitherto. It cannot be denied; but natural instinct has in part wonderfully supplied the place of the knowledge that science has only just begun to give. And when we look back, or even around us at present, and regard the thousands—I do not hesitate to say *millions*—of lost lives of little children from ignorant and improper feeding, we must not be too complacent or satisfied about the teachings of Natural Instinct.

The farmer ponders deeply over the condition of his cattle and pigs, and the trainer studies the feeding of his horses. They are obliged to do, to make them pay. But probably by neither the one nor the other, nor by any but a few, is the feeding of their children made a matter of serious consideration. Now a careful study of the dietary of children is an expenditure of time and trouble that will pre-eminently *pay*—that unfailing test of all right and utility in this mercenary age!

It is necessary that *a due proportion* of each of these classes of food that I have spoken of should be present in the diet of children. Some approximation as to the proportion that one should bear to the other, may be found by a glance at the figures in the Table on page 61. A child may be well-fed *or even overfed*, in point of quantity, and at the same time be starved, because one or other of these essential elements is almost absent from his food, while the other is present in excess. Sugar, starch, fat, gelatine—these terms being used in a wider sense*—appear to contain none of

* Instances of starch in diet, are potato and arrow-root; of fat, butter and "dripping;" of gelatin, calf's-foot jelly, the jelly of meat and of strong beef tea, and isinglass. One might have supposed that a diet of potatoes, butter, sugar, and jelly would have supported life and health

the elements of direct nutrition; life cannot be sustained upon any one of them or upon all of them together, yet how often has the experiment been unwittingly tried upon luckless children, with the most disastrous results. Therefore, when speaking in detail of the chief articles of children's diet, I will advert to the nutritive value as well as to the digestibility of each.

General Rules for Diet.—The time has now come, if the child has cut the majority of his temporary teeth, when the wants of Nature call for an extension of his diet. But there must be no sudden change; let the transition from the food of the later months of infancy to the diet of childhood be gradual, easy, almost imperceptible.

Milk is by no means to be discontinued, but animal food of a more decided character is to be cautiously added.

In the following sketch of a day's food, I merely shadow forth a general outline that will be useful as a guide to the inexperienced, but not as an inflexible rule.

In early childhood there should be an interval of not more than four hours, between the end of one meal and the beginning of the next; not counting the night.

Breakfast. At eight o'clock. Hot bread and milk, sweetened if necessary. Let the bread be cut up *small*, and take care that it is not new. Tops and bottoms may be used in the place of the bread, if the latter should not agree. Some children like oatmeal porridge with milk, and sweetened. But to be nice it should be very well made and a very little salt added. It is digestible, nutritious, and slightly laxative.

Dinner. At half-past twelve. One day some broth, weak beef-tea or simple soup and bread,—or some crumbed bread and mashed potato and gravy,—or a little boiled white fish (of course without the bones). On the next day, a little roast

indefinitely, but it will not support either for any long period under ordinary circumstances.

or boiled meat; mutton is the best—not too much done, and cut up fine—or instead, a little roast or boiled chicken. Also a small quantity of potato, if it be old and capable of being well mashed; if not, some well-cooked rice. As a second course, after either of these, a little rice and milk or sago pudding; or a corn flour and milk pudding, but none of them should contain more than one egg.

Tea (so called).—At five o'clock. Hot milk and sugar, with a very little tea added to it, and bread and butter. Plain biscuits are very wholesome, and usually give extreme satisfaction in the nursery.

If the children go to bed at an hour much later than this, there can be no objection to their having a biscuit and a little milk by way of supper.

During the years of childhood, a judicious change in the articles of dietary is pleasant and beneficial; a rigid unvarying round of set dishes sickens a child as much as it would ourselves. As much thought and care should be spent in arranging a nice and agreeable, as well as wholesome, dinner for the nursery, as is expended on that for the dining-room.

Above all things let mothers endeavour to teach their children this habit—*to eat slowly and to masticate their food well.* Very few children will do this without careful teaching. Thoroughly in earnest, as they always are about their meals, they seem to think the proper method is to keep their mouths crammed full; this forces them to swallow unmasticated morsels in rapid succession, and being excited to renewed exertion by the sight of more on their plates, they convey one spoonful after another to the same hasty process with most unwholesome speed.

It is perfectly obvious that a child who feeds in this manner, loses half, or more than half, of the nutritive value of his food, and afflicts himself moreover with griping pains,

flatulence, sickness, and diarrhœa, or with even worse evils. Many instances are easily recalled by me, and probably by all medical men, of children who have suffered from convulsions from neglect on the part of the nurse or mother to prevent this practice. It is destructive to health and to a fine physique and well developed frame, and the child cannot too soon be taught the propriety and comfort of slow and leisurely eating.

There is just one more bad practice that I should wish to guard mothers against, and it is a very bad one. I refer to feeding children between meals. In a deeply mistaken kindness, or to keep quiet fractious and spoilt children, some nurses and mothers are in the habit of constantly giving their little ones all sorts of odd morsels at all sorts of times. I call to mind many children, whom I know, whose unfortunate little stomachs, I will venture to say, never have more than an hour's rest, from the time they rise in the morning to the time they go to bed at night. The health and appearance of those children is miserable, and their tempers are unbearable.

Of course, when thus mismanaged, they can have no appetite for wholesome food, or at regular meal times; and while this want of system continues, they must degenerate morally and physically.

For all vital actions and processes, nervous force is requisite, and the digestion of food is no exception to this rule. Therefore, children (as well as their elders) should rest after their meals for a short time, thus allowing nervous power to concentrate itself more fully, as it were, on the process of digestion, instead of being dissipated in producing the exuberant frolics that are so capital a thing for them an hour later.

Another reason for this temporary quiescence is that the stomach gets through its work better and faster when at rest; and a delicate organ will not digest at all unless it be so.

Animal Food.—This should, of course, be given sparingly in the earlier months of childhood, and judiciously at all times. It is, perhaps, best for the infant to feed its way through beef tea, broths, and simple beef gravy to more solid animal food. The mother has to avoid, on the one hand, gross feeding and over-stimulation with this kind of diet, and on the other, the evil of deficient nutrition at a time when great calls are made upon the system for blood-making food for purposes of growth.

If a child become unpleasantly fat, heavy, languid, irritable, and feverish, with a whitish tongue or deranged bowels, it may be assumed that he has been overfed; and the supply must, of course, be much diminished, or altogether cut off.

Those who have the care of delicate children are very apt to think that their weakness calls for large quantities of "strengthening food," meat and so forth, to wit. An analogy may here serve to enforce a better practice.

When the fire on the hearth has sunken low and only flickers feebly, we feed it very carefully with a very little wood or coal at first, adding more little by little as it gains strength to consume what has already been put on; and so after a time it glows and burns strongly and brightly again. But we know that had we at first piled high the fuel upon it, we should have extinguished the faint sparks that still had life.

And we may easily do the self-same thing with the delicate child, if we pile on "strengthening food." Feed carefully, frequently, and by little at a time.

Those articles of animal food which are most suited (I may say *only* suited) to young children, are mutton, beef, lamb, chicken, fish (of certain kinds), and eggs: not including milk, of which enough has been said.

Mutton is the most digestible; and the wilder the animal, the more so is it; but the contrary is the case with oxen,

for the richer the grazing land, the better the beef. Lamb and veal are far less digestible than beef and mutton; but lamb may sometimes be taken by older children, while veal never should be given to those of any age. Neither should they ever take pork, or any of the many products of the pig. Chicken is well suited to their diet, and in a less degree, so is the older bird, known as "fowl," but without any accompaniments, unless it be a little melted butter. Ducks and geese, and nearly all water birds, are decidedly difficult of digestion. Poultry is most digestible when broiled, somewhat less when roasted, and least so, when boiled.

Game, including pigeons and rabbits, are better avoided, though there are some sorts which, when fresh, seem to do no harm, especially venison. Rabbits should be always shunned, since they are very indigestible; and from their habit of eating deadly nightshade and other herbs poisonous to man, their flesh has often been known to produce cases of absolute poisoning. Moreover, their flesh is extremely liable to contain certain parasites, which, when taken into the human stomach, develop into tape-worms. (See chapter on Worms).

The best *fish* for children are whiting, cod, and sole. Of course they contain less nourishment than flesh, but they form an agreeable change of diet occasionally.

Eggs may now be given with advantage, if in moderation. They are most digestible raw (as for instance, beaten up with milk and sugar); when poached they are somewhat less so, but are more easy to manage in this form than either boiled or fried. The latter should never be the mode of preparation for children, and if boiled they should be lightly done.

They are very nutritive, the white consisting of almost pure *albumen*, a substance that enters largely into the com-

position of our tissues, and especially into those of children, whilst in the yolk (the most digestible portion), an oily substance and colouring matter is added to the albumen. Probably there are few substances that are more quickly and easily dealt with by the stomach than an uncooked egg.

The eggs of ducks and guinea fowls are too rich for nursery use.

Salt is usually taken with animal food, therefore I advert to it in this place. It is a most necessary article of diet, for while all the salts required by our system are present in our daily food, this one, common salt, is scarcely so, and therefore must be added. There can be no doubt that over and above the important part it performs in assisting our digestion, and adding an indispensable element to our blood, it is also in some way a preservative against the formation of *worms* in the intestines. Children are peculiarly liable to be infected by these irritating and disgusting little creatures, and we are hereby furnished with an additional motive for encouraging them to take salt with their daily food.

Vegetables.—The digestibility of vegetables is increased or diminished, according as hard and tough fibre is absent or present; the nutritive value of none of them is high, some species consisting almost entirely of water. *The potato* when it is old and "mealy," may be used for children's diet. If it is well boiled, it is usually easily digested, and its nutritive qualities (as a vegetable) are fairly good, but not nearly equal to those of bread.

Even more digestible, but less nutritive, are the *vegetable marrow* and the heads of *asparagus;* these may be given in the nursery for a change, with advantage and satisfaction to the little ones.

Carrots are moderately nutritive and usually liked by children; but they should only be given when quite young and thoroughly boiled.

Turnips, since they contain hardly any element of nutrition, and are not always easy of digestion, it will be best to avoid.

The various species of *cabbage and greens* are unfit food for children. They are too fibrous to be easily digested; readily take on fermentation, and are very liable to cause flatulence and derangement of the bowels.

Peas and Beans are probably the most nutritious of all vegetables, but they are undoubtedly difficult of digestion, and are not fitted for articles of a child's diet. Pea-meal, however, is a good addition occasionally to broth or plain soup.

As an excellent substitute for vegetables from time to time, *Rice* may be given to children with their animal food. It should be boiled in such a manner that each grain, though softened and swelled, is perfectly distinct from the rest. Raw vegetables, such as lettuce, cucumber or radishes, should never be eaten by children.

Pies and Puddings.—Children take so keen a delight in this section of their bill of fare, that it would be a needless mortification of their affections to suppress it, and unkind not to endeavour, while rendering it wholesome, to suit it to their tastes as much as possible. "Puddings and pies are, moreover, particularly important articles of diet in the case of children; serving in some degree as a substitute for an amount of animal food, that is apt to disagree with and overload them. The diet of most children should be in a large degree farinaceous,"—"and the greater proportion of the dinner of the young ones should generally consist of some plain pudding or pie. It is seldom the case that the health of children continues to be long unimpaired, into whose diet animal fibre or oleaginous matter enter largely."* But in a subject that the art of cookery has widened far

* Robertson on "Regimen and Diet."

beyond *my* knowledge, it is clear that I can only give general advice as to what is best, and state what should be avoided. Very young children ought not to go beyond farinaceous puddings made with milk and but little egg, such as rice, sago, and tapioca. There is not a great amount of nutrition in these, save what the milk confers; but from their starchy character they are valuable as heat-producing food. As they become older they may take Oswego, corn-flour, maccaroni, "batter," "Yorkshire," or bread-puddings. As these contain gluten they are of a higher nutritive value. It is better never to give pastry to *young* children; but it would be ridiculous to assert that *plain and light* pastry is productive of harm to older ones. Of course, if they are allowed to eat too much (and many children will consume it till they desist from sheer inability to go on), or if it is badly or richly made, they will probably be rendered very ill; but if we look around we shall see, that of the thousands of children of all constitutions who are allowed to take this article of diet under proper restrictions, very few indeed above five or six years old suffer ill effects therefrom. Twice a week, however, is sufficiently often for it.*

Sugar and Sweets.—The notorious fondness of all children for sugar is not a mere coincidence, or unmeaning feature of childhood, but is *an instinct* of self-preservation. I have previously shown (see page 14) that every perfect dietary

* Dr. Horace Dobell has pointed out ("On Diet in Sickness and Health") that a pudding may be made after either of the following recipes, which will contain *every essential of a normal diet*, and which, together with a little of some fresh vegetable occasionally, would be sufficient, in the proper proportions, to sustain life for any period:—

I.	II.
Flour, 4 oz.	Rice, 3 oz.
Sugar, 1¼ oz.	Sugar, 1 oz.
Suet, ¾ oz.	Butter, ½ oz.
Egg, 1.	Eggs, 2.
Milk, ¾ pint.	Milk, ¾ pint.

must contain a saccharine element. It is present in the typical food, milk. Therefore it is safe to indulge judiciously a child's craving for sugar. Sugar belongs to the class of heat-producing foods, but it seems also to have a specially favourable influence on the creation of fat. The whole secret of the famous "Banting" diet, that we once heard so much about, lay in the exclusion from it of sugar in every form. The women in the seraglio of the Bey of Tripoli, Mrs. Walker tells us,* are fattened by a mixture of Turkish flour and honey; the process of fattening up to the degree of stoutness that represents the ideal of female beauty being completed in fifteen days. It is right that children should be rounded and fat; a thin, angular child is an anomaly, and too often the subject of disease.

Treacle or honey, as articles of diet for the nursery, are wholesome, when pure. They are more digestible than sugar proper, and the fact of their being slightly laxative (more so even than sugar) is, if anything, an advantage. The brown sugars are often most impure, but the loaf sugar is as pure as any article of commerce can be, and is much to be preferred for nursery use.

But with this, as with everything else, moderation must be observed; for besides its fattening property, sugar is apt (by means of a peculiar form of fermentation) to turn into acid in the stomach: if too much is allowed, the digestion becomes impaired, the secretions vitiated, and the appetite bad. It is by no means proved that a free use of sugar destroys or affects the teeth. The negroes of the West India Islands and Guiana take it in large quantities during the season of manufacture, and become very fat thereon; yet the beauty and soundness of their teeth is usually an object of admiration.

Sweetmeats should never be bought for children; if they

* "On Female Beauty."

must have some little treat or *bon bouche* of this sort, it must be made at home. The articles of confectionery that are sold are so utterly untrustworthy, and so largely adulterated and deleteriously coloured (and often with poisonous matters), that a child should be strictly forbidden them.

Numberless cases of poisoning by "sweets" are on record; and the revelations on this subject before the Parliamentary Committee on Adulteration were simply appalling. There is no possibility of hurtful adulteration in the substance called "sugar candy," but the best plan is for a mother to learn how to make some innocent and wholesome confectionery *at home* occasionally for her little ones. The chocolate prepared for eating by the Compagnie Coloniale * in Paris, is very agreeable, pure, and nutritious; and a little of it cannot do older children any harm.

Fresh, Dried, and Preserved Fruits.—(1) *Fresh Fruits*—There are some fresh fruits that can be eaten by older children with impunity and possibly with advantage; but younger ones, or those of any age who are weakly and have feeble digestions, are better without any, as they nearly always derange their bowels. Fresh fruits are always most digestible when baked or stewed; but if they are taken raw, they ought to be in the best possible condition. Their nutritive value is the same one way as the other. Perhaps the most digestible fruit is the English hot-house grape, but the skin and seeds should be rejected. The orange, when ripe, is always wholesome—so are strawberries and raspberries; English cultivated pine-apple, when in perfection, is easy of digestion; currants have the disadvantage of containing seeds, which are never digested and are apt to cause irritation; gooseberries also are better avoided, from the fact that they have both seeds and tough skins. Then in order of digestibility (for the above fruits have been mentioned in

* They have many agents in England.

that general order) come the greengage, peach, nectarine, and apricot; next, the apple and pear; then the plum and cherry, which are both indigestible and should not be given; and, lastly, wild fruits, the least easily dealt with of all.

Nuts of all sorts are altogether inadmissible as a child's food; it requires a powerful digestion even in an adult to render them at all soluble.

(2) *Dried Fruits* should not be given to any child, either old or young; they are most indigestible, and frequently (I might almost say *usually*) pass through and from the bowels unchanged. The presence of them in the stomach or bowels in large quantities, has been known to give rise to very serious symptoms. Perhaps two exceptions may be made to the above rule in favour of the pulp of the large "French plum," and of the dried apples called Normandy pippins; the pulp of which latter also, when well stewed, is wholesome and pleasant, and a good accompaniment to some puddings. But figs, raisins, and so-called currants should never be used.*

(3) *Preserved Fruits.*—These occur both as jellies and jams, the former containing only the juice and pulp, while the latter contains the whole fruit. Of course the former are the most digestible, from the absence of the skins and seeds and hard fibres, which so many fruits contain. But practically there does not seem to be any necessity to exclude many of the ordinary preserves from the pleasures of the table enjoyed by the little folks; only those however should be given that are made from the more digestible fruits, and even then with careful moderation. Thus used they will be found to disagree with but *very* few healthy children; but if the digestion is weak, or if there

* Figs are not unsuitable for *older* children; they contain more nourishment than an equal weight of bread.—H. S.

is a tendency to the formation of acid, they are interdicted as likely to foster and keep up the evils that exist.

Drinks for Children.—The instincts of a child are true; what he asks for as a drink is *water*. Some parents are in the habit of giving their children toast and water; the only recommendation that this practice has, is derived from its containing a slight amount of nutriment from the soaked toast, a very small benefit indeed to a healthy, hearty child. Whilst these absolute disadvantages exist, that its taste is mawkish and nasty, it requires continual fresh preparation, and if the bread used contains alum, as so much town-made bread does, the water dissolves it out and it is drank by the child, doing him no good we may be sure.

Until a child is a year and a half, or two years old, the time has not arrived at which any other drinks than milk or water should be allowed. After that time, perhaps, a little more liberty of choice is advisable. There can be no doubt that chocolate or cocoa, if *pure* and well made, with plenty of milk, is a very nutritive drink for children, and, as a rule, not at all difficult of digestion.* I have laid stress upon its being *pure*, because up to the present time both cocoa and chocolate have been most flagrantly adulterated articles of commerce. Cocoa *ought* to be the pure ground and roasted beans of the plant, reduced to paste—chocolate, the same thing with the addition of sugar; but numberless fraudulent additions have been detected in nearly all samples examined, of which flour, starch, mutton suet, red lead, red oxide of iron, and even brick dust, are a few.† The cocoas and cho-

* The large proportion of the natural cocoa "butter" makes some preparations indigestible. One of the purest and most digestible is Schweitzer's Cocoatina.—H. S.

† "I have known cocoa powder made of potato starch moistened with a decoction of cocoa-nut shells, and sweetened with treacle; chocolate made of the same materials, with the addition of tallow and of ochre."—*Dr. Normandy.*

colates of the Compagnie Coloniale and of Menier are the best.

If tea and coffee are given to children, they should be made *very* weak and with plenty of milk. There are those, I know, who maintain that children should never taste either the one or the other; but when we consider that the use of tea and coffee has a most undoubted influence in retarding the waste of the tissues of the body, that to a greater or less extent is always going on,—and in children most actively,—we see the use of these articles of diet for the little ones as well as for adults. Neither can I recall any case where the least harm has resulted from their use in careful moderation, and under the conditions stated above.

But there is one class of drinks that a healthy child should *never* touch, and even in disease only under medical supervision. I refer to alcoholic stimulants. I can consider no language too strongly condemnatory of the thoughtless, ignorant, and often wicked practice of giving children (of any age) alcoholic drinks. It is indeed an allegory of the text, "If thy child ask of thee a fish, wilt thou give him a serpent?" An almost equally great injury is thereby done him. For a mother to say that wine and beer is given to a child "to strengthen him," or "because he will not eat,"—reasonless "reasons" only too often heard,—is simply to expose the depth of her ignorance on dietetic matters, and the management of her children's health. A liking for malt liquor, wine, or spirits, is almost always in a child an acquired taste: Nature, until overcome by Habit, teaches him to shun these stimulants.

It is very difficult to sum up in a few words, or accurately, the effects produced on the young by alcoholic drinks, but speaking generally they may be said to be somewhat thus:—they tend to surcharge the system with carbonaceous matter; they overwork the liver and kidneys, rendering the

former organ especially liable to engorgement; they disorder the digestion, impair the appetite, and produce acidity and feverishness. In the sensitive constitutions of children, by deranging the functions and organs of the body generally, they render more liable to be developed, any latent hereditary taint that may chance to exist; and more easy to be acquired, and more fatal, any disease whose influence the system may be exposed to. If carried to an extreme, stunted forms, wizen, pallid features, and an old, unwholesome appearance are the result, not to mention the many disorders that a casual inspection takes no account of. Again, the system of the child, from being perpetually excited to an abnormally high pitch, has no power of resistance to disease when it comes. Those vital energies which when urgent need requires, might have been beneficially aroused by the spur of some alcoholic stimulant given medicinally, have grown too accustomed to it to answer at its call.

Though I am one of the last who would advocate the practice of *universal* abstinence, I speak thus emphatically on this point, because I, in common with most medical men in active practice, see so much of this widely spreading evil. Amongst the lower classes in the cities and large towns of this country, the amount of gin and other spirits given to infants and young children is incredible and appalling; nor are the middle and higher classes of society altogether free from a strong *soupçon* of the same vice, in allowing their children to have wine at dessert and on other occasions, and malt liquor in many cases habitually.

If children are to grow up fair, handsome, strong and healthy, they must be ignorant of the taste of any alcoholic drink, save in illness and under medical direction.

Such drinks as are agreeable and advisable for children in illness will be mentioned in their several places.

Before I close these remarks on the Food of Children, it

may be well for me to remind my readers, that probably not one of the general rules that has been laid down, is a rule without an exception. That certain articles of diet are the best food for children at certain ages, and that certain foods are more digestible than others by the majority of them, may be assumed as absolute facts; but nevertheless exceptions assert themselves, and here and there some heterodox infant occurs, who evidently must be treated in a manner that sets all dietetic laws at defiance; or occasionally a child appears to grow on an independent principle of its own, and to demand and thrive upon aliment that would be most hurtful to another. "What is one man's meat is another man's poison," says the old proverb, and it contains an element of truth that is at least as applicable to children as to adults.

NOTE.—*On the succeeding page I have made a summary of the leading foregoing facts in the form of a Diet Table, for convenience of reference. In the preparation of it I have been much assisted by the perusal of one by Dr. Edward Ellis, some portion of whose sound advice I have borrowed. The low diet table is only for use in certain conditions of illness to be hereafter named. The extra diet consists of a list of articles to be drawn upon in cases of great debility or exhausting disease. The ordinary diet is for general use, and presents sufficient variety to allow the exercise of choice.*

ARTICLES TO BE AVOIDED.

New or heavy bread, hard-boiled eggs, strong tea or coffee, potted meats, and all artificial and highly seasoned preparations of a similar kind. All rich and highly seasoned soups. *Meats*—Pork, veal, bacon, salt beef, duck, goose, sausages, liver, kidney, heart, tripe. *Fish*—All shell fish except oysters, and those only in exceptional circumstances. Salmon, eels, herrings, mackerel, and fresh-water fish generally. *Vegetables*—Cucumber, radishes, celery, onions, flavouring herbs, mushrooms, broad beans, greens—and *pickles*. Excess and rich character of pastry, unreliable sweetmeats, sauces, spices, nuts, cheese, sweet and rich cakes, suet puddings, and dried currants and raisins in puddings. All alcoholic stimulants.

Children's meals should be regular in time, and not too far apart. Breakfast should be the best meal, but supper a very light one.

DIET TABLE.

Meal.	Low Diet.	Ordinary Diet.	Extra articles to be added to ordinary diet when the case may demand.
Breakfast, 8 to 9 o'clock.	Hot bread and milk (one-third water). Arrow-root, with milk and water. Rice Milk.	Hot bread and milk (half a pint, new) sweetened. Bread and butter to eat with it if required. Bread, or toast, and butter; with very weak tea with plenty of milk—or weak chocolate and milk; wholesome and more nutritious. Oatmeal porridge, with milk and sweetened.	New laid egg beaten up in warm milk, with a teaspoonful or two of cream. Very lightly boiled new laid egg. Iceland moss cocoa.
Dinner, 12 to 1 o'clock.	Fish, as boiled sole or whiting. Boiled chicken. Chicken broth and bread. Light farinaceous puddings, as rice, sago, tapioca, oswego, or bread.	Bread, mashed potato, and gravy. Beef tea, mutton broth, or chicken broth and bread. *Fish*—Whiting, cod, sole, or turbot. Always better boiled than fried. *Meat*—Roast or boiled mutton, roast beef, mutton chop, rump steak (tender and not overdone), lamb, chicken, or turkey. *Vegetables*—Potatoes (not new, and well boiled), asparagus, French beans, vegetable marrow, sea-kale, carrots (young), cauliflower; or boiled rice used as a vegetable. *Puddings, &c.*—Rice, sago, tapioca, oswego, corn flour, bread, batter, maccaroni, plain custard. Occasionally plain light pastry, with stewed fruit or preserves. *Fruit*—Most wholesome when baked or stewed. (See page 72.) *Beverage*—Water.	Liebig's Extract of Meat. Clear turtle soup—both nutritious and digestible. Fluid meat (Darby's). Clear soup made from lean of beef, with the addition of sago, rice, maccaroni, pearl barley, or vegetables, and with but little seasoning. The preparation "Strong Nourishing Broth" (No. 17 in appendix), with, or without the wine. Essence of beef (No. 16 in appendix). Raw meat shredded, or raw meat juice (Nos. 18 and 19 in appendix). Oysters. Grouse, pheasant, snipe, venison. Suet and milk (No. 20 in appendix). Stimulants—(ordinary) pale ale or stout, good hock, wine whey.—(extraordinary) Port wine, Champagne, brandy. Port wine jelly (No. 21 in appendix). An excellent way of giving Port wine.
Tea, 4 to 5 P.M.	As breakfast; or tea made very weak with milk, with dry toast or a biscuit.	As breakfast. Or if weak tea has been taken in the morning, let it be cocoa or milk in the evening, and *vice versâ*.	
Supper, (*i.e.*, before going to bed.)	Gruel. Milk and water. Arrowroot.	Cup of milk and biscuit, toast, or rusks. Roasted apple.	Light puddings. Beef tea. A little jelly or blanc mange, and cup of new milk.

CHAPTER II.

ON CLOTHING AND ABLUTION.

SECTION I.—ON CLOTHING.

"THE skin must not be considered merely as a common covering to defend us from the sun and rain, but as one of the most important organs of our body, without the incessant activity and agency of which, there can be neither health nor long life; and in the neglect of which, in modern times, lies the secret source of numberless diseases and evils that tend to shorten our existence." Thus wrote Hufeland,* an accomplished German physician, in the year A.D. 1796, and his words are as true now as they were then.

Clothing and Ablution are two chief means of maintaining this important organ—the skin—in healthy action; and therefore before we can understand and enter into these subjects with intelligence or interest, it is necessary that we should know something of the functions of the skin, and of its relations to the other organs of the body generally. We have seen what Hufeland most truly says, that the skin is not a mere covering to defend us from heat and cold, sun and rain; then what more is it? what further uses does it subserve?

Firstly—as every one knows, it is our organ of special sensibility, and on this account is more copiously endowed with nerves than any other portion of our frame. Hence the

* "On the Art of Prolonging Life."

system becomes liable to "shock" (as it is called) from the sudden application of great cold or heat to the skin.

Secondly—it is one of our organs of respiration: of which the lungs are the other. It is not with our lungs only that we breathe in pure air and exhale foul, but our whole skin, though less active in this respect, is continually at work in the same way. Thus it is a most important agent in the constant purification of the blood.

Thirdly—it is one of our principal organs of secretion, acting as a sort of "relieve guard" of the kidneys. We are all familiar with the perspiration induced by exercise or heat, but not all of us are aware that even when no moisture is visible on the skin, when it seems perfectly dry, that it is still relieving the body by pouring out a large quantity of water in the invisible form of vapour. Careful experiments by able men have established the fact, that the average amount of fluid exhaled in this insensible manner from the skin by an adult in twenty-four hours, is very nearly a pint and a-half,—and in this about 140 grains of solid matter are contained. These quantities are very much increased by heat or exertion,* nor will they surprise us when we consider the following curious computation by Mr. Erasmus Wilson; —"I counted the perspiratory pores on the palm of the hand, and found 3528 in a square inch. Now each of these pores being the aperture of a little tube about a quarter of an inch long, it follows that in a square inch of skin on the palm of the hand there exists a length of tube equal to 882 inches, or 73½ feet." . . . "I think that 2800 might be taken as a fair average of the number of pores in the square inch (of the whole surface of the body), and 700 consequently of the number of inches in length. Now the num-

* The careful observations of Dr. Southwood Smith made upon men at work in the Phœnix Gas Works, show that the loss by respiration and perspiration only, in the case of one man at work in a very hot place, was 5 lb. 2 oz. in one hour; the average loss of eight of his mates being 2 lb. 8 oz. in the same time.

ber of square inches of surface in a man of ordinary height and bulk is 2,500; the number of pores therefore is 7,000,000, and the number of inches of perspiratory tube, 1,750,000, that is 145,833 feet, or 48,600 yards, or nearly 28 miles."* A wonderful length of drainage truly! The functions performed by so vast a system of excreting tubes can be no secondary one. What would happen if the free course was obstructed or the purifying flow checked?

In order adequately to perform all these functions, the skin is most richly supplied with blood vessels as well as with nerves: the effect of cold being to empty them, and to drive the blood to the interior organs of the body in undue quantity; while heat on the contrary dilates them, drawing off blood from the interior to fill them. And again—cold checks the exhalation of gases and watery vapour from the skin, thus throwing a burden of extra work upon the lungs and kidneys, while heat facilitates their secretion, and relieves these organs. It is a fact that scarcely needs pointing to, that in hot weather, or under exercise (or when both causes act), the skin secretes more fluid and the kidneys less, while the breathing is easier. Under the influence of cold the opposite is the case, the skin pours out but little moisture, while the lungs exhale vapour more abundantly, the kidneys secrete water freely, and the breathing is more forced. If the functions of the whole of the skin are stopped, life also is very speedily terminated; if a large tract of this important secreting and absorbing surface is destroyed, as in a severe burn or scald, life is much endangered. Claude Bernard varnished some rabbits all over; they died in a very short time.

All this teaches us that there is a very intimate connection between the functions of the skin, lungs, and kidneys; and

* "Diseases of the Skin," 4th Ed. London, 1857. P. 18.

that it is very necessary to the maintenance of health, that a tolerably even balance should be kept of their respective actions, that neither the one nor the other should for any long time together be overburdened with work. To a great extent this may be done by attention to the details of Clothing and Ablution. How much more important such an attention becomes with *Infants and Children*, whose susceptibilities are so delicate, and in a climate like ours, where the changeability of the weather has become a by-word and a reproach, it needs not that I should further point out; but it is a fact that *of all the many predisposing causes of disease, cold is probably the most powerful.*

It should be borne in mind that *infants require to be protected from all cold* with particular care. A singular belief is prevalent among many, that on account of the activity of their circulation they can bear cold without hurt. Few notions could be more mistaken or more dangerous. In all warm-blooded animals the power of generating heat is feeblest at birth; very gradually increasing up to adult life, and declining again towards old age. It is in times of hard frost and during periods of long-continued cold, that we find the bills of mortality full of the deaths of old people and young children. Therefore I believe it to be difficult to keep a very young baby too warm. Let a mother, when her infant's crying can neither be appeased nor understood, first ascertain that he is not crying simply because he is *cold* (as babies so often do), before she pronounces his ailment to be "wind," or some other and more mysterious malady. Its clothing is, therefore, a matter of importance.

A warm clothing does not necessitate a complicated one; and the endless garments that encase modern babies are both unmeaning and uncalled for. The number of articles that can be applied to the body and limbs of an

infant, or their richness and costly elaboration, are no valuable test of a mother's affection, though they may be of her wealth or love of display. A simple regard for the *comfort* and *well-being* of her offspring is the surest proof of maternal love. Fashion and custom will probably always be stronger than reason, and therefore it would be useless for the medical man to specify the number of articles to be worn, or their shape or make, just as it would be were he to point out the absurdity of the long and sweeping robes that weigh upon and exhaust the lower limbs of the correctly clad infant. But after all, these details are not of vital importance, and must be left to the discretion of individual mothers, provided that they are always guided by certain principles which I will presently advert to. From personal medical experience of the manner in which infants and little children are clad in successive layers of garments of complicated make and adjustment—I have counted *eight* such, on one child,—I am satisfied that a salutary nursery reform ought to be undertaken in the number, shape, and material employed, could anyone of influence in these matters be found bold enough to take the initiative.

Clothes that require such frequent changing and washing should be few, warm, comparatively inexpensive and simple. An infant has no waist or any particular shape; therefore it is absurd to attempt to fit him with garments fashioned for the most part on the model of a much older child's or an adult's.

The materials of clothing are selected according to their power of conducting heat. Those substances that neither receive heat quickly, nor part with it easily, are called bad conductors of heat; those that receive it easily, and part with it easily, are good conductors. For warm clothing we select a bad conductor, but for light garments a good con-

ductor. Of the ordinary fabrics in use, wool is the worst conductor of heat; silk is a bad one; cotton is better, and flax is the best. Feathers are bad conductors, and down is still worse. Fur, leather, dressed skins and cork are all very bad conductors. A knowledge of these facts tells us that cloths, worsted, merinoes, and stuffs are warmer than silks, and much warmer than calicoes, or prints:—that an eider-down quilt is the lightest and warmest covering a child can have for his bed:—and that there is nothing like a pair of cork soles covered with wool, inside a child's boots, to keep his feet warm.

A child should always wear *flannel next to the skin.* A soft and fine one will seldom cause irritation, but if it should do, silk is the best substitute, woven in the same manner as silk stockings, but into a thicker texture. Indeed, as a material for underclothing, silk thus woven is not used as much as it deserves to be from its many excellent qualities. But whether silk or flannel is used, the vest should be made "*high*": it is important that the upper part of the chest should be as fully protected as the lower—possibly more so. "In a few instances," Dr. Tanner says, in speaking of weakly children, "good results follow the use of an under waistcoat and drawers of chamois leather." But one objection to this would be the difficulty with which insensible transpiration would take place through it, and the moist condition the garments would be apt to get into.

In Infancy.—An infant's clothing should be light as well as warm, and therefore fine calico and flannel are the best materials, though on account of the extreme delicacy of skin, it will be necessary that the shirt or chemise next to it be of soft linen. But as the child grows older this had better be left off, and the flannel placed in contact with the skin, acting as a gentle and healthy stimulant to it, and a more perfect non-conductor of heat. The quantity of the clothes

and the material they are made of, must, of course, be regulated according to the constitution of the child, whether it be strong or delicate, and to external temperature, whether it be hot or cold. I may here observe that the continuance of life in children prematurely born, seems to depend more on their being kept thoroughly warm than upon any other circumstance. The practice of leaving the neck, the upper part of the chest, and the arms of an infant bare, during seasons of cold, is senseless and cruel, and with delicate children, dangerous. There is every reason to suppose that the two former regions are especially susceptible to cold. Caps have almost ceased to be used, and children are better without them;—the old aphorism of the distinguished physician Boerhaave, "Keep the head cool and the feet warm," is a good practical one to remember—but by throwing a warm light shawl or wrapper around the baby, enclosing its head, when passing from room to room, many a troublesome cold may be saved.

It is *just* possible, however, to err, even with young infants on the side of over-carefulness—by loading them with clothing, and keeping them constantly confined to hot and close rooms. The object to be attained in *properly* clothing a baby, is to enable it to bear changes of external temperature without suffering thereby, and certainly does not supersede the necessity of its being taken into the open air every day that the weather permits, or of the atmosphere that it breathes within doors being changed from time to time.

The flannels and linens of infants should be very frequently renewed, certainly once in twenty-four hours. This is essential to health with *all* children; but more particularly so with babies, on account of the sour and acrid condition into which they constantly get, from vomiting surplus and half-digested milk; because also of the rapidly recurring evacuations of the bladder and bowels, which, unless this point is

attended to, cause them to be pervaded by an unwholesome smell, not to mention the soiled state of their clothing. The most scrupulous cleanliness should be observed in this particular, and a soiled garment should be *at once* changed.

A most important point to be attended to in the clothes of an infant, is that they should be at the same time *comfortable* and sufficiently loose. I lay stress on their being rendered as comfortable as possible, since it appears to be the rule rather than the exception for *fit* to be altogether disregarded; and we see the unfortunate little creatures packed in multifarious coverings (*dressed* we cannot term it) that restrain the movements of their limbs, render them restless and miserable, and reduce them to a condition little superior to the "maillot" or "papoose," which the traveller in Spain, Italy, and other parts of Europe views with such sincere compassion. Let the mother remember the irritation and discomfort produced in her own case by ill-arranged and misfitting clothes, and also that her baby can never explain to her the miseries it may be suffering from, and she will surely be careful not to err in this respect. The infant's clothes should be fairly loose in order to allow free and unrestricted play of the limbs, (so important a matter in their development,) unimpeded circulation, and a sufficient exit for the insensible perspiration, so that it is not confined nor absorbed by the clothes to an unwholesome degree,—and lastly, to allow of room for the continual growth that is going on, and that renders the affair of children's dress so difficult to arrange.

During the earlier months of life (until a less unmeaning custom comes into vogue) it is usual for infants to wear the long robes already adverted to, whose only claim to merit lies in the protection that they give to the lower limbs. It is hardly necessary to say that "short coating" should

not be done during cold weather, or without some precautions against cold being taken.

In Childhood.—While speaking of infants, I have been careful to leave the impression that they cannot, as a rule, be too tenderly cared for as regards protection from cold. But now that the infant has arrived at childhood, some exception is to be made to this doctrine. We must steer a middle course between two almost equally prejudicial extremes; the one is the process of so-called "hardening," the other is commonly termed "coddling." There are some children so robust of constitution that they pass through the perils of the hardening system,—scanty dress, fireless rooms, cold baths all the year round, and only Spartan luxuries—without seeming to have the seeds of disease sown in them thereby; but it must be well understood that they grow up strong *in spite* of their treatment, not *because* of it. For once that this system succeeds, nine times at least it will fail: and failure means disease or death. The other extreme of over-tenderness and delicacy, though not so absolutely fatal in its results as the last, is most debilitating both to the physical, moral, and mental health of the future man or woman. We may be thankful that the almost undiminished energy and vigour of the Anglo-Saxon race give us reason to believe that it is not largely practised. The clothing of childhood, as that of infancy, should be regulated with a due regard to the constitution of the child, and to the season of the year, but as little as may be to the prevailing fashion of the time. It should be light, but affording due warmth; permitting unrestrained motion, though it may not be fashioned without regard to fit and comfort.

I think that great simplicity should be studied in children's dress. It is more effective than elaboration and fashion, as a rule more productive of comfort and a feeling of freedom

and non-restraint, and better for their moral training. A child's beauty lies in itself, not in its dress, and nothing but what is pure and simple sets it off. The half naked condition that some poor children (chiefly of the upper classes) present, with bare shoulders, legs and arms, and exposed chests, may be very gratifying to the, perhaps, pardonable vanity of parents and friends, but is most dangerous to the little folks themselves. It is sometimes the cause of sudden attacks of acute and inflammatory disease, sometimes it fosters and develops a latent malady that might otherwise have slumbered for years, and not unfrequently the seeds of disease in future life are thereby sown to bring forth bitter fruit.

While we steadfastly avoid "coddling," except with the very delicate, we must remember that we still have to do with young and immature beings, whose animal heat requires to be carefully husbanded by covering every portion of the body from the external cold. In a changeable climate like ours, it is prudent to change to the warmer dress of winter early and to leave it off late, as the most sudden and trying alternations of temperature are common in autumn and spring.

It is not wise to muffle up the throat and neck of children when they go out of doors, unless the cold should be unusually severe or the child unusually delicate. The practice appears liable to induce extreme sensibility of the vocal organs, windpipe, and throat, and to render the recurrence of bad colds more frequent. This is one small item of the hardening system that experience shows to be wise and salutary.

But whatever may be the character of the coverings of other parts of the body, *the feet* must be most carefully kept warm. It is the most dependent part of the system and the most distant from the heart, and that in which the circula-

tion of the blood may be the most readily checked. The ill effects arising from the exposure of the feet to cold or wet for any length of time, are too thoroughly recognised to need any mention in detail; but it will be well for mothers to bear in mind that while chilblains, colds, and disordered stomachs are some of the smallest ailments resulting therefrom, rheumatic fever and serious, and often fatal, inflammatory diseases are equally possible results. The soles of children's boots should not either in summer or winter be thin, nor should the boots or shoes be of flimsy material. In winter it is a useful plan to put thin cork soles covered with wool inside the boots, and delicate children, or those of a feeble circulation and predisposed to chilblains, should wear a pair of chamois leather socks, or should have their boots lined with fur or some fleecy wool stuff. In winter, also, lambs' wool stockings are the best for children's wear, and they should be long enough to well protect the legs, not permitting the poor little creatures to come in from a cold walk, as they too often do, with their legs blue and almost frostbitten. Consideration for their comfort will suggest an equally protective care over the hands during winter. A word of advice worth bearing in mind, is that children should not be *unequally* clad; one part of the body being overloaded with clothes, whilst others are almost bare or altogether exposed. Common sense (that rare quality!) tells us that this is bad, and that the more nearly the temperature of the whole exterior of the body is equalised by clothing, the better it is for the regularity of the circulation and the functions of the child generally.

Fortunately the practice of putting girls into stays does not commence until they have well-nigh passed out of childhood,—and therefore out of the scope of these remarks,—but it cannot be out of place for me to exhort my readers to postpone a change which custom alone has rendered

necessary, and which both medical science and common sense condemn as ridiculous and detrimental, as long as may be possible. Let Nature have a chance, and allow her as much time as you can, to mould the child's figure as it should be, graceful and unrestrained, before Art—the art of the corset maker—shall be applied to form unsightly artificial curves and shape it as it should not be.

At night children should never wear the flannels they have worn during the day, both for the sake of cleanliness and to invigorate and refresh the skin by a change. Considering that during sleep, vitality, and consequently the power of generating animal heat, is lower than during the day, and also how usual it is for children tossing in their sleep to throw off their bedclothes, it is best that their nightgowns (for *young* children at least) should be made of fine flannel, both in summer and winter. The thickness of the flannel may vary with the season, but flannel of some kind should be the material.

Amongst the characteristics that affect the warmth of clothing, *colour* is one. Numerous careful experiments have proved that different colours when communicated to the same material, cause it to absorb and to part with heat at different rates of rapidity. Black is shown to absorb heat the most readily, dark green somewhat less so, scarlet less readily still, and white least of all. But in the application of these facts to clothing, we should also inquire what colour parts with heat the least readily, and this we find to be white also.*

* The radiation of heat depends also on material, the rougher surface radiating more rapidly.—H. S.

Section II.—Bathing and Ablution.

In the introductory remarks of this chapter, we have seen how large a drainage of both solid and liquid particles takes place continually from the body through the pores of the skin. Though a large proportion of the liquid excreted passes off in the form of vapour, all of it does not, but some remains in combination with the solid matter as a greasy kind of substance, filling up the pores, and obstructing the proper action of the skin.

Hence children should be frequently and regularly bathed at definite intervals, both for purposes of cleanliness and to promote the wholesome action of the skin, thereby influencing for good the other functions generally, and promoting the health and vigour of the system.

The practice called hydropathy, with whatever success may have attended it, the establishment of Turkish and Russian baths, and the good frequently following their use by adults, the elaborate baths of the ancient Greeks and Italians, and of Oriental nations, all serve to illustrate the importance that is, and has ever been, attached to the care of the skin as an organ whose activity is essential to health.

In Infancy.—The first event of the lives of all of us is—*our bath.* The new-born infant should be well washed in water at a temperature of from 95 to 100 degrees Fahrenheit, and (if soap is used at all) with Castile or glycerine soap; by which means all impurities, including the white unctuous substance that adheres to the skin of most new-born infants, can be removed. But if any difficulty should be met with in removing this white matter, it is better to let it remain than to clean it off by using roughness; it will all scale off in a day or two. Before the infant is dried, it should be dipped into the bath or held over it, while it is thoroughly

sponged with clean warm water, in order to leave the skin perfectly cleansed in all its pores.

It is an ascertained fact, that the temperature of the body of new-born infants is only 93 or 94 degrees, and in the case of the very delicate or prematurely born still lower, not being more than 90 degrees, while that of adults is 98 degrees. Hence we see the necessity of letting their baths be warm, and, for the earlier months of infancy, always a little above rather than below the temperature of their own bodies. Their skin is too sensitive, their vitality usually too feeble, and their animal heat too low to bear a cold bath, or to be benefited even by a tepid one.

Every morning then, as soon as taken from the bed, the infant should be *put into* a bath of a temperature varying from 95 to 100 degrees. The time of his remaining in, need only be long enough to allow of thorough washing. Again in the evening, before his being put to bed, the same process should be repeated, with the same warmth of water. Plenty of it should be used, and not the absurdly small quantity that so many nurses seem to think sufficient for the purpose. In winter time, or in cold weather of any season, children's baths should always be given before a good fire and in an atmosphere well warmed, or a risk is run of doing more harm than good by exposure of the little one to a dangerous chill by the sudden transition from hot to cold; the flannel nightgown or the underclothes for the day should be well warmed at the fire and ready to put on directly the child is dry.

As the child grows older and less fragile, the warmth of the morning bath should be gradually diminished until it is tepid, whilst the evening ablution is still performed with water of an agreeable and soothing warmth.

There are many things, the proper method of doing which, no amount of description will explain; they can

only be learnt by practice, or be well done by those who have dexterity and the happy knack of light-handedness. The washing and drying of a baby is one of these simple-difficult things. It is torment to watch some mothers and nurses go through it. The drying should be peformed with a very fine, soft, and light towel; or if a Turkish towel sufficiently fine and soft can be got, that will be even better: it should be done briskly and quickly (though always tenderly), that the infant may be kept lying exposed as short a time as possible after coming out of the warm water. The drying, besides merely removing moisture, which it should do very thoroughly, acts as a stimulant to the skin and promotes its healthy action and the vigour of the child: therefore the nurse should not merely *dab* his skin over with the towel, but *gently* and briskly *rub* it. Special care should be given to the dryness of the groins and armpits and all other folds and creases of his body,* and they should afterwards be well dusted with starch powder or the so-called "violet powder,"† to prevent excoriation and soreness. The hair, if there be any, should be regularly brushed and combed, the ears, nose, and eyes looked to every day, and all the apertures of the body similarly inspected and kept in perfect cleanliness. It surely cannot be necessary to add that *directly* an evacuation from the bladder or bowels has occurred, the napkin should be changed, and the wet or soiled surface of the baby be sponged clean and carefully dried. Too great attention cannot be paid to this particular.

In Childhood.—In early childhood very little modifica-

* The child should feel to the hand perfectly dry and smooth.—H. S.

† The following is the best recipe for making it —Powdered starch, 1 lb.; powdered orris root, 1 ounce; essence of ambergris, 40 drops; essence of bergamot, 40 drops. Mix, and pass the powder through a fine sieve.

tion of the plan recommended for the later period of infancy is necessary. The morning and evening bath must still be adhered to, the morning wash being now performed in merely tepid water. The warmth of the evening bath continues to be useful in many ways; notably by causing a healthful degree of perspiration and by inducing sleep, a quality most beneficial with restless children. Moreover, in the evening their vital energies are too exhausted to get up a sufficient reaction and glow after a tepid or cold bath. But as the child grows older our measures should be changed for such as are less tender and more bracing.

It is a good plan, if a child is frightened of the water, to cover the bath with a blanket or a large towel on which he may be placed, and may then be gradually lowered into the water. Much terror and trouble may thus be avoided, and a valuable means of health is not lost.

If healthy and strong, he may go into a *cold* bath every morning immediately on rising. There is art in the administration of a cold bath, and according to the intelligent management of it, will it be productive of good or harm. Let the following plain instructions be followed, and good only will be the result. No one (child or adult) should make use of cold bathing if they cannot afterwards establish a good reaction,* producing a delightful glow and exhilaration; if instead of this they feel chilled and miserable, their fingers becoming "dead," as it is termed, and their hands and feet numbed, they must discontinue the practice. In such a case tepid water must be used; and this may be necessary even for the hardy child during the winter months; but even then, if he can bear it and feel warm afterwards, the *cold* bath is the best. But the cold

* The reaction should be established independently of any rubbing.—H. S.

bath for a child, however strong, should never be of a temperature at all below 60 degrees Fahrenheit, and ought seldom to be so low. Before taking it, the child should not be allowed to play about in his nightgown or to linger round it while naked, but he should go straight from his bed to his bath, and at once be well sponged (with a good-sized sponge) over every part of the body. If the child be very robust and with an active circulation, cold water may be poured over him, producing a modified shower-bath effect. He should only remain in for a minute or two, or the stimulus to the skin will degenerate into a depressing influence, and the good reaction be destroyed. Then at once let him be well dried with a fair-sized Turkish bath-towel, briskly, and with as much friction as his skin will bear. Having been thoroughly dried and rubbed, there should be no delay in getting the clothes on ;—and every morning as long as he is in health, the same process should be gone through.

In the case of delicate children, considerable modification of this course will be necessary, and a tepid, or perhaps even a warm bath, will have to be substituted for the cold bath. The cold bath, amongst other advantages, undoubtedly has a protective influence over the child, rendering him far less likely to "catch cold" from trivial causes, and increasing his power of resistance to morbid influences that might otherwise affect him. As the child grows older, the evening bath may be partially discontinued, being used, for instance, on alternate evenings, while an ordinary good washing takes its place on every other evening. The use of warm water for washing in, except for very young and tender children, should be steadily discouraged. It produces a hurtful sensibility and delicacy of skin, and renders them more open to the influences of cold, and in winter strongly predisposes to chilblains.

But it is impossible for too much stress to be laid on the cultivation of habitual cleanliness and regular bathing for children; and this may be done without rendering their lives burdensome to them by reason of perpetual washings at all hours of the day; for there is no harm in their being dirty for a short time (and where is the child who does not rejoice in becoming so?), provided a definite hour is coming for ablution. They thus become educated to consider cleanliness and the use of baths as a sort of moral duty; and indeed it is an invariable concomitant of sound morality. Canon Kingsley's whimsical advice to his little readers, towards the conclusion of "Water Babies," contains more good sense and connectedness than at first sight may appear.* The first step towards reformation that the low and vicious, and the most degraded classes always take, is to wash themselves.

The addition of salt to baths for children is in many cases greatly augmentative of their benefit. Where its use is desirable, a handful of common salt is better than none; but the "Sea Salt,"† now so commonly and cheaply sold, is to be much preferred. It makes a capital imitation of a sea-water bath, and secures many of its advantages—the healthful stimulus to the skin, the increased reaction and warmth produced, and the sanitary effects derived from the absorption by the body, of a small portion of the saline matter contained in the bath. It is well adapted for occasional use in the case of all strong and hardy children, and also—for extremes meet—with children suffering, or likely to suffer, from strumous complaints; and in cases of spinal debility, with or without curvature, and others to be here-

* "Meanwhile do you learn your lessons, and thank God that you have plenty of cold water to wash in; and wash in it, too, like a true Englishman, do."

† Tidman's Sea Salt is the best known.

after mentioned in their places. The test of benefit in all these is the thoroughness of the reaction following. After a cold salt-water bath, and after drying, the child should always have a brisk "dry rub" with a fine Turkish towel.

Sea-Bathing.—Of course no artificial method is comparable to the real sea bath. We cannot at home (at any rate in large towns) imitate the bracing air, the change of scene, and the constant out-of-door exercise therein, which add so materially to the health-giving properties of the sea-bath. The best time for a child to take it, is two or three hours after breakfast; but he should go to it fresh and unexhausted, or he may not have power enough to get up a good after-glow, and a chill may be the result. The greatest care and tact should be used to avoid frightening the child, and he should be gradually accustomed to the new and exciting circumstances in which he finds himself. Instead of being handed over to the tender mercies of an amphibious female in an alarming costume, whose face is strange to him, he should be kindly and gently inducted to the process by his mother or nurse, or some one in whom he has confidence; who would have too good sense to terrify him by repeated plunges under advancing waves. Thus, by reassurance and good management, the bathe in the sea becomes before long a treat instead of a terror; and a valuable sanitary resource is not lost to him, as it too often is to children, by want of consideration and tact.

Children should remain in the sea but for four or five minutes, more or less, according to the age and constitution of the child and the temperature of the water. The value of a sea bath is materially enhanced by active exercise being taken whilst enjoying it, and therefore (as well as for other reasons) both boys and girls should be *taught to swim* as early as may be possible. That this accomplishment *may* be acquired much earlier than is generally imagined, is proved by

the fact that the children of the islanders of the Pacific archipelago swim with amazing facility from their earliest childhood.

Any other kind of bath that it may be necessary for children to use as a curative agent, for any form of disease, will be hereafter mentioned in its place.

CHAPTER III.

ON VENTILATION AND LIGHT.

SECTION I.—VENTILATION.

IN this climate, and more especially in large towns and cities, our children are necessarily confined to the house during the greater portion of the day, and sometimes for whole days together; and therefore it is most essential that we should look with the closest regard to every point that will render their apartments thoroughly healthful, and that we should study the subject attentively in all its bearings, as its importance demands.

It is impossible for a mother to be too well informed upon any detail that affects the health and future well-being of her children. Apparently trifling external circumstances influence the process of formation and development in living things, in a most marked and wonderful manner. It is just the fact that children are men and women in course of formation, ready to receive every impression for good or evil, and to profit or lose by it in their sound organisation or unhealthy development, that should make us so careful to let all these impressions be good ones.

Impure air, which it is the object of ventilation to remove affects the body chiefly through the medium of the respiration; and thus it becomes necessary that something should be known of this function, before an intelligent knowledge can be obtained of the first subject of this chapter. The

air that we breathe is a mixture of the gases oxygen and nitrogen, in the proportion, by volume, of one part of the former, to four of the latter. The nitrogen is inactive, and merely serves to dilute the oxygen. When we expand our lungs with air, the oxygen contained in it purifies all the blood with which it comes in contact, by combining with the carbon that makes it dark coloured and impure, and forming with it carbonic acid gas. The blood rushes on revivified and rid of its impurity, and the carbonic acid is breathed out into the surrounding atmosphere—invisible but noxious.

The amount of poisonous air and deleterious matter that each one of us produces in the twenty-four hours is amazing, to say nothing of the quantity of pure air that we consume. I will take an average example. Valentin (the distinguished physiologist of Berne) found that he gave off six hundred and four grains of carbonic acid per hour. Of this, of course, two hundred and twenty-six grains was carbon—familiar examples of which element, in a solid and impure condition, are soot, charcoal, black lead, &c. And a further calculation shows, that he would exhale at the same rate nearly thirty ounces and a quarter of carbonic acid, containing *eleven ounces and a quarter of carbon, in twenty-four hours.* In the same period he consumed twenty-six ounces of oxygen gas—an amount which represents one hundred and thirteen ounces of atmospheric air. Moreover, we must take into account the enormous amount of watery vapour given forth by the lungs and skin into the air—laden, as it is, with effete particles of the body, which rapidly putrefy and become additional sources of pollution, their odour being only too perceptible.

Thus we breathe in nitrogen and the life-giving oxygen, and we breathe out nitrogen and the deadly carbonic acid, together with watery vapour. If pure carbonic gas is inhaled, it at once extinguishes life;* therefore it is necessary that

* Most of my readers will be aware that it is this gas that is formed by charcoal fires, cases of the destruction of life by which are so common. It is chiefly the production of this gas that causes the suffocation of the miners, when "choke damp" is said to have invaded a mine. The process of lime-burning and of fermentation, and every fire and light that is kindled, gives it off also.

the air we breathe should be as free as may be from so deadly a poison. We are all familiar with some of its milder effects, in the headache, flushing of the face, languor, and oppression that we feel when in hot, unventilated rooms or crowded assemblies. How often has a mother noticed these very same symptoms in her child, or has found that on waking he is listless, cross, and unrefreshed! and how often has she ascribed them to approaching illness, instead of to a close and stifling condition of his nursery, bed-room, or school-room! This unventilated, impure condition of the air that children daily breathe, may continue off and on for some time and make no sign but this—they are wanting in child-like energy, their digestions are weak, they are losing their clear, fresh colour and brilliancy of eye—but that is all; they are not positively ill: it is not necessary—so thinks the mother—to send for the doctor. Possibly not; but it *is* necessary to give them air. They are undergoing slow poisoning all the same; the exhalations from the bodies of crowded human beings are scarcely less deadly than the fumes of mercury, and more so than the malaria of the fen.

The permanent effects of breathing an atmosphere thus vitiated, are as marked as cause and effect can be, and it is on children that they fall most heavily. (1) Those diseased conditions of the system which doctors call *tuberculosis* and *scrofula* are fearfully apt to be developed; in which many destructive maladies, such as consumption, water on the brain, or consumption of the bowels (marasmus), besides many other lesser evils, may probably show themselves. "If there be any diseased condition that is strictly the product of impure air, it is scrofula." (Sir Thomas Watson.)* (2) For a child to live in foul air, is to foster in him any hereditary taint or latent unsoundness that he may possess, and to encourage it to spring forth into active disease; while it is

* "On the Principles and Practice of Medicine," Lecture VII.

possible that careful sanitary measures might have done much to efface the one and to repair the other. (3) A close and unventilated atmosphere, if it fortunately fail to induce actual disease in a child habitually breathing it, never fails so to influence him that his vitality is lowered, and his constitution is ready to pick up—if I may say so—any infection, or to become a prey to any and every source of disease that approaches him.

In those valleys of Switzerland which are so hemmed in by huge mountains that the close and confined air, disturbed by no healthful breeze, stagnates in the hollows, and where the sun appears but a short time above their lofty horizons—and not at all in winter,—two disgusting diseases are fearfully rife. The closeness of the atmosphere, and the deficiency of sun-light, are ascertained to be the chief cause of *goître* and *cretinism;* the one disfiguring the neck with a huge and unsightly tumour of the throat, the other rendering its wretched victim a deformed and drivelling idiot. Nor are these diseases peculiar to Switzerland: they probably require only the same conditions, those of unpurified air and little light principally, to call them into existence in any part of the world.

In the close and crowded streets and alleys of large towns, we see sad and widespread traces of the baleful effects of impure air; and not only in the rookeries and filthy slums that are a disgrace to our civilisation, but also wherever houses are too densely inhabited by a population who live mostly indoors, is this poison engendered and stored up. Take the case of the lodging-house system, where every floor of a badly ventilated, cheaply built house, is inhabited by a whole family, and where often every *room* has its family or families. I understate the facts when I say that it is the commonest thing possible for a street, outwardly decent and respectable in appearance, with houses having basement,

ground floor, two stories, and attics, to average a population of thirty persons per house, thus crowding together in the narrow compass of fifty houses, fifteen hundred souls. What wonder that the poor children we see in such numbers in these neighbourhoods are white-faced, wizen, and prematurely old, with lustreless eyes and shrunken limbs! What wonder at the fearful mortality that decimates them while yet in infancy! Rather should we be surprised that *any* degree of health could be maintained, or that life was *ever* preserved, with the combined forces of unsuitable and often insufficient diet, imperfect drainage, want of exercise, overcrowding, and continually poisoned atmosphere, arrayed against them.

It is only necessary to glance at the following simple tables to perceive the immense difference of mortality between town and country districts. If we inquire to what this difference is due, we become amply convinced that overcrowding of human beings, impurity and stagnation of air, and the impeded access of light, are almost entirely responsible. We cannot here lay the blame on drainage, for as a rule the drainage of country districts is more faulty than that of towns, and is often even an unknown refinement.

NUMBER OF DEATHS IN EVERY 1000 LIVING, IN 1870.

	In Towns.	In Country.
1st Quarter of Year	27·7	24·0
2nd ,, ,, ...	22·7	20·1
3rd ,, ,, ...	23·9	19·1
4th ,, ,, ...	24·0	19·0
Total	98·3	82·2

Thus out of every 1000 people living, sixteen more die in town than in the country in each year.

The influence of fresh, pure air, and abundant light, is

even more strikingly shown by another reference to the facts of the Registrar-General's Report. We will compare the mortality in four unhealthy manufacturing districts—where the light is obscured by smoke, and the air poisoned by foul gases, and which are filled with a teeming and often closely packed industrial population—with that in four healthy agricultural districts, destitute alike of manufactures and large towns.

AVERAGE DEATH-RATE PER 1000—1851 TO 1860.

Four Unhealthy Districts.		Four Healthy Districts.	
London	24	Surrey (extra-Metropolitan)	18
West Riding of Yorkshire	24	Westmoreland . . .	18
Staffordshire . . .	25	Rutlandshire . . .	18
Lancashire	26	Sussex	19
	99		73

Observe the difference!—26 in every 1000!

In a most able paper on the mortality of children, Dr. Farr has shown that the number of deaths annually, *of children under five years of age*, are in large towns, as 10 in every 100 living, to 4 in every 100, in healthy country districts.

Facts like these speak for themselves. Facing them no one can say that too much importance is ascribed to the health-giving influences of abundance of pure air and sunlight in the rearing of children. But without care and attention to the matter,—founding our conduct on some such principles as will be given immediately,—this evil of allowing the very air we breathe to become noxious, will pursue our children more or less closely into even the most elegant abodes.

All plans for ensuring efficient ventilation must be based upon the following facts.

The rate of breathing in an average adult is about sixteen times in a minute, and each respiration vitiates one cubic foot of pure air; thus

each man vitiates nine hundred and sixty cubic feet (or in round numbers one thousand cubic feet) per hour, and consequently requires a fresh supply of pure air at the same rate. It can be thus obtained :—

A current of air travelling at the rate of three feet per second is not felt as a draft ; and at that rate, one and a quarter cubic feet a minute, or seventy-five cubic feet an hour, will be admitted by an aperture one inch square in size, communicating with the external air.

Therefore if an apartment has, for every seventy-five cubic feet of capacity, a ventilating aperture one square inch in size, the whole air of the room will be changed once in an hour.

Supposing that the capacity of a chamber enables it to contain one thousand cubic feet for every person in it, the necessary supply of fresh air may be obtained by its having a ventilating aperture (or apertures) fourteen square inches in size to every thousand cubic feet. But if the size of the room only allows five hundred cubic feet to each person in it, the air must be changed *twice* every hour to obtain the requisite thousand cubic feet per hour for each individual.*

It must be remembered that gas, and lights of every kind in ordinary use, in process of combustion, consume the oxygen of the air, and give off into it carbonic acid and watery vapour in a similar manner to the respiration of human beings and animals. Therefore, in providing for ventilation, the fact must be taken into account, that the gas consumed by an ordinary fish-tail burner vitiates in one hour, as much pure air as does the respiration of three adults.

Though the above facts are based upon the respiration of adults, they require scarcely any modification to suit them to the use of children. It is commonly supposed that because children are so small, they require but little breathing space, and that a room may safely be made to contain such a number of them as would be considered most unhealthy in the case of adults. This is all very erroneous. If their bodies are but small, their respiration is quicker and their

* I am indebted for some of the above facts and figures to Dr. Horace Dobell, "On Diet and Regimen," p. 13.

skin more actively transpiring than that of grown-up persons; thus the balance is nearly made up, and in order to do right and act safely, we must allow to each growing child very nearly the same space in his day and bed rooms that we should apportion to an adult. The nursery should contain at least five hundred cubic feet of air (*more would be better*) for each child who lives in it, and a school-room the same: but a bedroom should contain from seven hundred to one thousand cubic feet for each child who sleeps there.

It may be useful to some small section of my readers if I instruct them how to estimate the capacity of their children's rooms. Nothing can be easier. It is necessary merely to measure separately the length, the breadth, and the height of the room, and then to multiply all these three measurements together, and the result will be the number of cubic feet that it contains. Thus a nursery ten feet high, ten feet wide, and fifteen feet long, contains fifteen hundred cubic feet of air (ten times ten is a hundred, and fifteen times one hundred is, of course, fifteen hundred), and therefore is large enough (if a larger cannot be had) for three children.

But even when this amount of space, or more, is allowed, the necessity for continual ventilation still remains; for we learned above, that nearly one thousand cubic feet of pure air was vitiated every hour by each adult, and not much less by each child. It is, therefore, necessary for me now to mention the best methods of effecting this.

The most obvious remedy against impure air is to open the door and windows at certain intervals, and allow a current of fresh air to rush through. If the season of the year and the clemency of the weather admit, and if the little occupants can be meantime placed in another room, nothing can be better. But since many circumstances often prevent frequent and thorough ventilation by means of door and windows, we cannot depend on them alone, but should have other means at hand that are continually in operation.

Whenever children leave their nursery or school-room,

advantage should be taken of their absence to open wide the windows and door, until the air is thoroughly renewed and the room purified. When they leave their bed-room in the morning, the same practice should be always employed, and the bed-clothes having been thrown open and completely off, the bed ought to be left thoroughly exposed to the air for two or three hours: so that the impurities with which they have become tainted in the night may be carried off. We have another effective means of ventilation in the fires that in winter are burnt in the children's rooms. Heated air, as everybody knows, constantly ascends; therefore, as the heat of the fire causes all the air near it to rush up the chimney, fresh quantities are drawn off from the room to supply its place; while the atmosphere of the room becomes replenished through chinks and crevices of the door or windows, if there be no other inlet of air. But fires have a defect as ventilating agents, for this reason. The vitiated air that we breathe out is heated by contact with our lungs, and therefore at once ascends to the ceiling of the room; then having become cooled, it descends again; and not till it has reached the low level of the fire-place—a level at which it must be again breathed in—can it be driven up the chimney by the heat.

Therefore, we must adopt yet other means. The best of these are, (1st) ventilating panes for the windows; (2nd) ventilators adjusted to the doors; and (3rd) Dr. Arnott's, or some other, patent ventilating valve.

The ventilating panes should be in the highest part of the window; there are several forms of them that are familiar to every respectable and intelligent glazier. A very useful form (Moore's patent) is shown in fig. 4: the parallel plates of which it is composed are moveable, so as to allow of the ventilator being opened or closed. Figure 1, represents another form (Cooper's patent); it is made of plate glass,

and its action is simple and efficient. In *a* it is open, in *b* closed.

The ventilator for the nursery or bedroom door, is best formed by letting into one of its upper panels a structure of

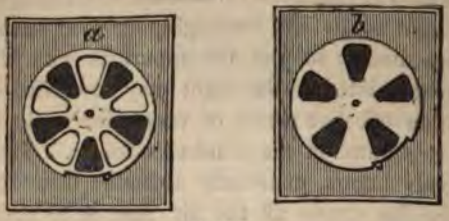


FIG. 1.

the same character as the glass ventilator shown in figure 4, but made of wood and capable of being opened and closed, so as to allow of the supply of air being regulated at will, whilst privacy is not interfered with (fig. 5). Or a zinc plate perforated with very numerous fine apertures, and painted to match the rest of the door, might be inserted in the same position.

FIG. 2.

FIG. 3.

Dr. Arnott's ventilating valve * "is a contrivance placed in an opening made from the room into the chimney flue, near the ceiling, by which all the noxious air is allowed, in obedience to the chimney draft, to pass away, but through which no air or smoke can return." The figure (3)

* Fully described in his book "On Ventilation and Warming."

represents it and explains its action. The metallic flap *a*, moves on a hinge between *b* and *b*, and is counterpoised by the weight *c*. Indeed, the weight *rather* more than counterbalances it, so as to bring it up to the

FIG. 4.

FIG. 5.

closed position. Therefore, a breath of air, or the pressure of heated air from the room opens it, and allows the latter to pass up the chimney, while a draft from the chimney closes it. If the chimney should be badly constructed, and have a down draft, this otherwise ingenious contrivance fails to act well.

Very recently an admirable pair of ventilators has been introduced,* named Boyle's Patent.

"Figure 6 represents the front view of the self-acting outlet ventilator. Figure 7 represents the back view of the same, for ventilating into smoke-flues or direct into the open air. It consists of a framework and box, the former of which is divided into four compartments. An equal number of valves opening outwards are fitted to these compartments, these valves being made of mica and very lightly hung, so as to act with the smallest appreciable motion of air. The inlet ventilator is shown by figure 2, and is constructed so as to be fixed in the skirting of

* By Messrs. Comyn, Ching, and Co., Little St. Andrew's Street, Upper St. Martin's Lane, W.C.

the room, about four or six inches from the floor, having a pipe communicating with the outer air, and covered externally by an ornamental air-brick flush with the wall of the house. The circular cover of the internal inlet is fitted with a central screw, over a disc of wire gauze

FIG. 6.

FIG. 7.

which renders it draftless, so that the entrance of air, filtered from without, can be regulated at will, or the inlet can be closed altogether.' —Extract from the *Lancet*, Feb. 15, 1873.

But it is well nigh in vain that we study methods of ventilation, if the *drainage* of the house be imperfect. The utmost diligence to secure pure air will be unavailing, if a perpetual source of pollution, disease, and death diffuses its pestilence around us, and is laid on by pipes to our very chamber doors. This subject is too extensive to be treated of in the limits at my disposal, though I shall advert to one of its morbid effects when speaking of Typhoid Fever.

But never let a mother who values her children's health or lives, allow any bad smell, faint odour or effluvium of drains, to go long unchallenged and unexplained. Who can say how many thousands of lives of young and old—nay, hundreds of thousands—have been needlessly sacrificed by ignorance or carelessness on this point!

A few practical instructions concerning the rooms occupied by the children, may well conclude the first section of this chapter.

"There is no place good enough for a nursery, while a better is to be found. Pass the ground floor, and then select the largest, the loftiest, the best ventilated, and the

best lighted room in the house—the room with the largest windows and commanding the cheeriest prospect—and make that the nursery."*

A point to be carefully regarded in the selection of the rooms for the children, especially when the house is situated in London or a large town, is that they should be *high up*. In London, and wherever dwellings are thickly placed and population is dense, the top rooms of a house (if of fair dimensions) are the healthiest. The light is not shut out by the houses of the street; the air is purer, drier, and circulates more freely. Even in the country a high situation is usually the best for a house, and in valleys, or in flat and marshy districts, the upper rooms are certainly the healthiest.

The *aspect* of the children's nursery and school-room should, if possible, be either south-east, south, or south-west; and the force of this remark will be more duly appreciated when my reader has become acquainted with the influence of sunlight on development and health (see page 113). A bright and pleasant prospect has a greater effect on the health and spirits than we might at first be disposed to believe. Have not some of us, who are *not* children, nor like them easily impressionable, ever experienced irritation, depression and an unaccountable misery, for which a perpetual gazing out into some dreary back yard, or over some dismal brickfield or monotonous flat, was alone responsible? Then, since children are the creatures of circumstances, and are influenced so readily by external things, they should have the best prospect attainable without, and within a cheerful room well ornamented with pictures.

The *temperature* of the children's rooms ought to be carefully regulated. There should be a thermometer both in the nursery and school-room, and it ought never to show a temperature much above 60 degrees. Hot rooms enervate

* Mr. Archibald Maclaren in *Macmillan's Magazine*, No. 30.

children and render them liable to disease, besides increasing any little temporary feverishness by which they are so often affected. By living in overheated rooms, also, they are made perilously susceptible to cold on the slightest exposure; if they are treated like exotics, they will behave like them when withdrawn from the fostering heat. On the other hand, the temperature of the rooms should never be allowed to fall lower than 55 or 60 degrees; and it is necessary in winter, in the case of young and delicate children, to have a fire in the bedroom in order to sustain this minimum temperature there. Gas and other lights should be used as sparingly as possible in the children's rooms, both from the unwholesome heat produced, and from the vitiation of the air occasioned by them (as explained on page 105). Moreover, we must remember that in all the ordinary modes of burning gas, no insignificant amount of it escapes into the air of the room, unconsumed. To breathe this carburetted hydrogen (which is a decided poison) can do nothing but harm to children exposed to its influence.

No cooking, no washing nor drying of dirty linen, should ever be allowed in these rooms, nor any other process by which smells are made and the air polluted. All dirty linen, soiled napkins or sheets, all evacuations and slops, should be *instantly* removed far out of the way, not only of the children, but of all members of the family. In the whole code of sanitary laws, I doubt if there is one more important than this, or more frequently infringed.

It is well to have the walls of the children's rooms, or the paper that covers them, sized and varnished; and for this reason—when thus prepared they can be washed from time to time, and so cleansed of the animal particles and effluvia that are undoubtedly given off by respiration, and that stick there, polluting the air by their decomposition.

Section II.—On Light.

"Where light is not permitted to enter, the physician will have to go;" so runs an old Italian proverb, and it is inevitably true. A proper diet, due warmth, cleanliness and pure air, are all essentials of existence for children; but not a whit less is it indispensable to their health, and strong and fair development, that they should be brought up exposed to the light,—so far as may be, growing and ripening in the sunshine. It is an ascertained fact, that the effect of deprivation of light is to diminish the quantity of "fibrin" and red blood-cells in the blood (which are in fact its very life), and to increase its "serum" or watery portion. This change in the vital fluid produces those pallid, nerveless, spectral forms that issue by thousands into our streets from dusky alleys and twilight courts, from cellars and the dark abodes of crime and poverty, and from close workshops whose only light is gas. Amongst these dismal crowds what abortive, weird, and ghastly specimens of childhood do we see! Old before their time, pale and flabby, sickly, listless, and brooding; no ringing merriment and sparkling eye, no healthful flush of cheek, or jolly rotundity of body and limbs, no exuberance of health, no charm of youth,—children only in name and years. But what of all those that we do not see? Frailer even than the wretched survivors, *they* have succumbed to darkness and foul air, and only the bills of mortality take account of their brief existence.

Deficiency of light, either alone or combined with an impure and confined atmosphere, is a direct and fruitful predisposing cause of the diseased condition of the system before alluded to under the name of scrofula: and it has, moreover, an unvarying influence in checking the growth and development of the young. Numberless facts and

observations go to attest how invariably true this is; but it will be enough if I point the attention of my readers to merely a very few.

The dreadful unhealthiness of that portion of our labouring class who work and live in continual darkness, was amply proved by the Parliamentary Commission which examined evidence on this subject many years ago. Bakers, printers, and others employed at the daily press, night porters, and many more who work by night and sleep by day, are much enfeebled in their constitutions by the deprivation of light that they suffer. I have said that development is often arrested by absence of sunlight; and it is a well-attested fact that in "many young girls and boys who are early consigned to a life of darkness in mines, or in other places, puberty" (or the change from boy- or girl-hood into man- or woman-hood) "is either never attained or is greatly retarded." Their growth is stunted also, and all their functions are sluggish. Nor does the injury fall upon the body alone; the mind suffers too; it, also, ceases to expand and grow, and a greater or less degree of vacuity or imbecility is the result. In the arrondissement of Chimay in Belgium is (or was —1844) a population of three thousand souls. Part of this number are engaged as agricultural labourers, while the remainder are coal miners. The former are healthy and strong, and easily supply their appointed number of recruits to the army; whilst among the latter, who work in the dark, it is difficult in most years to find *one* man whom some deformity or physical defect does not render ineligible.*

The same writer that relates the above facts, also gives an interesting illustration of the baneful effects of a dimmed light upon the health of young children. His attention was once drawn to the mutilated condition of several large

* Fourcault, "Causes Générales des Malades Chroniques," 1844.

mulberry trees, whose boughs, before they were removed, had completely overshadowed a school-room in which several orphan girls afflicted with chronic diseases were educated. In reply to his question as to why they had been so cut, he was told that the deep shade produced by them had visibly aggravated the scrofulous disorders that were rife among the girls, and that a very favourable change in their condition had taken place, since they had been thus exposed to the free sunshine.

Both the animal and vegetable kingdoms supply us with innumerable examples of the almost universal law that light is essential to life.

The experiments of Dr. Edwards showed that the development of tadpoles into frogs was considerably delayed, and in some instances altogether prevented, by shutting them off from the influence of light.†

Sir Humphry Davy describes‡ the arrest of development in the *Proteus anguinus*, as seen by him in the Grotto of the Madalena in Illyria. It is white and transparent, has no eyes, is abundantly furnished with teeth, but is never known to eat—a state which undergoes much change after exposure to light. He ascribes its absence of colour and imperfect condition generally, to the profound darkness in which it lives. Several animals belonging to different classes, which inhabit the caves of Kentucky and Carniola, are blind. The crabs retain the stalks on which their eyes are usually placed, but the eyes are gone; and the cave-rat has large lustrous eyes, but no power of vision.

Amongst trees and plants we cannot but notice how the shoots are always thrown off and the leaves turned, towards the strongest sunlight; and we are familiar with the blanched

† Dr. W. F. Edwards on the "Influence of the Physical Agents on Life," 1832.

‡ "Consolations of Travel."

and colourless state of those grown in darkness. The gardener can produce this "etiolation" (as it is called) at will, in the stalks of his celery, the shoots of his asparagus and seakale, and the hearts of his lettuces, by simply excluding light from them. And there can be no doubt that a mother may etiolate her child with equal readiness, by pursuing a modification of the same plan.

During the early part of the late American war, Dr. William H. Hammond "visited the camp and hospital of the regiment stationed in West Virginia. Reports had reached General Rosencranz' head-quarters that the sickness and mortality were something frightful, and he was ordered to examine minutely into all the circumstances connected with the situation of the camp, the food of the men, etc. Among other things, he found the sick crowded into a small room, from which the light was excluded by blinds of India-rubber cloth. *They were as effectually bleached as is celery by the earth being heaped up around it.* Pale, bloodless, ghost-like looking forms, they seemed to be scarcely mortal. Convalescence under such circumstances was almost impossible, and doubtless many had died who, had they been subjected to the operation of the simplest laws of nature, would have recovered."*

"Utterly regardless of the principles just enunciated, how often do we see parents who cannot, for a moment, be considered indifferent as to the present and future health of their offspring, adopting the most ingenious means of effectually excluding light from the bodies of young infants and children! No course can be more detrimental to their health than the one just referred to, because the value of an important vital element is systematically ignored at a period of life when it is of the highest importance that it should be brought to bear upon the purification of the blood, and

* "British Medical Journal," June 28, 1873.

consequent healthy development of organic structures. Children even at an early age should not be excluded, particularly during the warm periods of the year, from the genial and cheering influence of the sun. The sanitary effect of light can be easily made available, even during winter months (in rooms properly ventilated and heated), with little or no danger. Great benefit to the health would accrue by giving children what the ancients termed "*solaria*," or solar-air baths; that is, permitting them to lie naked upon the bed or floor, free from the incumbrance of swaddling clothes, so that their bodies may be thoroughly brought under the influence, for some period of the day, of good air and bright sunlight. The children of savages, as well as of negroes, who are often allowed, as soon as they can walk alone, to run about in the open air (in a state of nature) freely exposed to the influence of light, have finely developed muscular structures, and generally enjoy robust health."—*Dr. Forbes Winslow.**

Dr. Andrew Wynter, writing in the *Pall Mall Gazette*, says:—"The necessity of light for young children is not half appreciated. Many of the afflictions of children, and nearly all the cadaverous looks of those brought up in great cities, are ascribable to this deficiency of light and air. When we see the glass rooms of the photographers in every street high upon the topmost story, we grudge them their application to a mere personal vanity. Why should not our nurseries be constructed in the same manner? If mothers knew the value of light to the skin in childhood, especially to children of a scrofulous tendency, we should have plenty of these glass-house nurseries, where children might run about in a proper temperature, free of much of that clothing which at present seals up the skin—that great supplementary lung—to sunlight and oxygen. Glass-house nurseries lifted

* "On Light, its Influence on Life and Health." 1867.

up to the topmost story would save many a weakly child that now perishes for want of those necessaries of infant life."

I cannot more fitly supplement these extremely sensible remarks, and conclude what I have to say on this subject, than by this vigorous passage from Florence Nightingale's "Notes on Nursing":—

"Who has not observed the purifying effect of light, and especially of direct sunlight, upon the air of a room? Here is an observation within everybody's experience. Go into a room where the shutters are always shut (in a sick-room or a bedroom there should never be shutters shut), and though the room be uninhabited, though the air has never been polluted by the breathing of human beings, you will observe a close, musty smell of corrupt air—of air, *i.e.*, unpurified by the effect of the sun's rays. The mustiness of dark rooms and corners, indeed, is proverbial. The cheerfulness of a room, the usefulness of light in treating disease, is all important. 'Where there is sun, there is thought.' All physiology goes to confirm this. Where is the shady side of deep valleys, there is cretinism. Where are cellars and the unsunned sides of narrow streets, there is the degeneracy and weakliness of the human race—mind and body equally degenerating. Put the pale withering plant and human being in the sun, and, if not too far gone, each will recover health and spirit.

"It is a curious thing to observe how almost all patients lie with their faces turned to the light, exactly as plants always make their way towards the light; a patient will even complain that it gives him pain 'lying on that side.' 'Then why *do* you lie on that side?' He does not know; but we do. It is because it is the side towards the window. A fashionable physician has recently published, in a Government report, that he always turns his patients'

faces from the light. Yes, but nature is stronger than fashionable physicians, and, depend upon it, she turns the faces back, and *towards* such light as she can get. Walk through the wards of a hospital, remember the bedsides of private patients you have seen, and count how many sick you ever saw lying with their faces towards the wall."

In all these facts lies the story; and the *moral* is not far to find. Let mothers, and those who have the care of children, but think for themselves, and they will not need help of mine to elucidate it or reduce it to instructions on details.

CHAPTER IV.

ON EXERCISE AND SLEEP.

SECTION I.—ON EXERCISE.

IF there be one thing more than another that is essential to the sound health and proper development of children, or that can ensure their growing up to a fair-formed youth, or to an active and healthy manhood and womanhood, it is *Exercise*. In spite of the bad sanitary conditions among which they live, and their poor and often insufficient diet, the children of the peasantry are a hardier and healthier class than the children of large towns, who, as a rule, are better housed, better clothed, and better fed; and this, in virtue of the air and exercise that fall to the lot of the former.

"It is to exercise almost exclusively, that we must look, as the means of actual physical culture during the greater part of the period of growth and development;"* but the subject is extremely liable to be misunderstood, wrongly applied, or altogether neglected. Since instructions are always more readily and effectively carried out, when an intelligent knowledge exists as to the mode of their operation, and the objects to be attained by them, it will be well for us first to inquire, what is Exercise? What does it do for our children? and how does it do it?

Exercise is voluntary movement, produced by muscular contraction—by which every motion of the body is accomplished; but it is an ascertained fact, that by every motion

* "On Physical Education." Maclaren; Oxford.

of the body, of a limb, of a finger, however slight, a certain minute portion of the tissue of the muscle that produced the movement suffers destruction—becomes effete and dead in fact. The more active the movement, or the greater the number of movements that there are, the larger is the amount of tissue that will be destroyed. And if this were all, the body would speedily become attenuated or wasted to a point at which life could no longer be sustained; but just as the loss of substance of each part of the body is in proportion to its activity, so also is the process of repair. This rebuilding of our structures is conducted by the nutritive system, by means of which food is changed into blood, which contains in itself every element that every tissue needs for its restoration.

The circulation of the blood through every portion of the frame, bears on its tide all the elements of repair, and, by a wonderful and unexplainable law, each tissue selects from among them *the one* that it requires and no other. We have seen that exercise increases and hastens loss of substance; but it also increases the volume, and hastens the flow of the blood bearing the reparative materials, and that in its onward course washes away, and carries off, the effete and destroyed particles to those organs whose duty it is to consume them or eliminate them from the body.

The reparative process not only equals the process of destruction, but slightly exceeds it; thus exercise, that entails a certain amount of loss, causes it also to be repaired, and a little *additional* substance to be formed as well.* Thus

* The reason of this is, that Nature being ever prodigal of her forces, and provident for the future, seeing that a certain amount of exercise is being taken out of a certain muscle, presupposing that such exercise is to continue, and so a similar drain is to be maintained, stores up provision for the contingent requirement, and so the muscle grows to meet the extra demand made upon it.—H. S.

we see limbs and muscles that are much used increase in size; the arms of a smith and the legs of a dancer are familiar examples. In childhood and youth, the process of growth preponderates still more over that of decay, and a gradual increase of power and bulk is the result. The health and strength of the body, as a whole and in its several parts, is in direct relation to the frequency with which its particles are renewed, or, in other words, to the *newness* of the whole frame; and the most active producer of this newness is exercise. The principal physiological effects of exercise may be summed up thus—

(1) It is the chief agent (as we have seen) in the destruction of the tissues.

(2) It is the chief agent (as we have seen) in their renovation.

(3) From the pressure of the contracting muscles upon the blood-vessels, accelerating the motion of their contents, and from other causes, it quickens the circulation and respiration.

(4) By reason of the quickening of the circulation and respiration, and the rapid waste of tissue, a more active combustion of carbon goes on in the system, and especially in the lungs and liver; and a considerable increase in the animal heat accordingly takes place.

(5) By quickening the circulation, it promotes greater activity in all the functions of the body, thereby inducing sound health and activity of mind.

(6) It strengthens the body by developing its bones and muscles.

Thus in the answer to the three questions with which we set out, we see of what paramount advantage and importance it is to children that they should have constant and well-regulated exercise.

It cannot be too forcibly urged upon parents and those who

have the care of children, that although Diet, Clothing, Ventilation, and Light are each of them matters requiring the most earnest study and care, it is not enough if they stop here. It is not enough if they do not provide time and means for their children to exercise their muscles thoroughly and equably, in hearty games or stated exercises, for a certain time of each day, and if possible in the open air; and the sports and exercises should be so arranged that the various parts of the body are *equally* developed. Fair and healthy manhood and womanhood cannot follow a childhood in which exercise is neglected; nay, even in which it is not made one of the principal employments of each day.

Although by exercise children will gain strength, which is a good thing, they will also gain *health*, which is a better—health now, and a strong prospect of it throughout their future lives; for now they learn active and healthful habits that will probably never be quite shaken off.

In encouraging children to take plenty of exercise, we for the most part put them under two other most favourable conditions; they are in the light and the fresh air.

If these arguments appeal to no higher motive, they will at least touch the pardonable vanity of a parent, who loves her child to be admired; for assuredly there is no means known, for giving beauty of figure and grace of carriage and movement, to compare with exercise. It is the beauty of well-set bones, developed muscles, and supple joints, and the grace of conscious vitality and strength; the beauty and grace of Nature, not the makeshifts of Art. Now, if ever, while the bones are still pliable and the frame growing, should pains be taken to develop the future man or woman to the utmost strength, beauty, and perfection possible. Now, if ever, if deformities or irregularities of structure exist, should the powerful remedy which exercise supplies to many of them, be put judiciously in force, before the plastic tissues

have become set into a form never after to be altered. Nor should parents or teachers commit the common error of treating all children alike, in respect to the exercise they take; it ought to be carefully adapted to the age, strength, and constitution of each child, taking care that none are overtasked.

Exercise for Infants.—To speak of exercise for *infants* may seem absurd and uncalled for, but this is by no means the case. The exercise for them may differ in kind from that taken by their elders, but it is the same in its effects. If an infant is strong and healthy, no opportunity of fine weather should be lost of sending him into the open air for a short time, and, if possible, every day. But the practicability of these daily walks in his nurse's arms must depend on the condition of the atmosphere. It will do no baby any good to send him out when the weather is extremely damp; and it will do him nothing but harm to be exposed to an easterly wind, which is a prolific source of inflammatory attacks in childhood. In sending infants and young children out of doors, it should never be forgotten how feeble their power of resistance to cold is, and every part of the body should be *thoroughly* protected. As a general rule, an infant born in the late spring or summer may be taken out of doors (on a fine day) after a fortnight or three weeks; but if born in late autumn, winter, or early spring, not until the lapse of five or six weeks, and then only in mild weather.*

Gentle friction with the hand over the surface of the limbs and body after the bath, is another good means of passive exercise for babies; the child likes it, and it tends

* It is advisable in some cases, when a child is born in winter, not to take him out, as a rule, at all during the variable cold and damp of our climate, nor during our too-constant east and north-east spring winds.—H. S.

to invigorate the circulation and stimulate the muscles. It is also a good thing from time to time to disencumber the infant's lower limbs of all napkins and other impediments of dress, and to lay him down and let him kick at will, and have the free use of his legs; or better still, when he is quite naked, to let him lie for a time on the nurse's lap before a good fire and protected from drafts, when the evident glee with which he spasmodically works his arms and legs, attests his pleasure in the diversion, and the good it does him.

Until the fourth or fifth month of life (and often not so soon) the bones of an infant's spine are too soft, and its muscles too weak, to enable him to sit up or to support the weight of the head. Nature will tell the child when he can do so, and until then his back, neck, and head should be always well supported by the nurse. The common customs of dandling and swinging babies about, of jolting them up and down, and patting them heavily on the back, are as unkind as they are ridiculous. A baby in such matters is not different to ourselves, save in requiring greater tenderness; and there can be no manner of doubt that were we made the subjects of such usage, our objection to it would be expressed in the strongest manner. A very moderate and gentle degree of motion is pleasant to infants, but it should be nothing more than this.

Various methods are spoken of by one and another, of *teaching a child to walk*, but all of them are best let alone. The child knows his own strength, the mother does not; and by interference she might endeavour to put him upon his feet before the bones were sufficiently hardened, the joints consolidated, or the muscles strong enough to support his weight—and the result would be curvature and distortion of the legs. Here, as elsewhere, Nature is the best guide. Let the child be encouraged to crawl about, and, as

soon as ever his limbs are strong enough, he will begin to support himself by chairs and so on. Then, if he has a good space of soft carpet allowed him, cleared of all hard substances, he will soon *teach himself* to walk; not without many falls, probably—but the falls, such as they are, will do him less harm than the fallacious supports given him by so-called "*methods*," or the premature attempts encouraged by them.

Occasionally, a heavy child, who walks early, will be found to have suffered some slight curvature of the legs, or to have "weak ankles" as it is termed, which signifies a twisting inwards or outwards of the feet. But these conditions, if noticed and attended to in early childhood, are nearly always remediable, and irons, splints, and patent boots are very seldom necessary. The means are, to remove the cause by preventing the child for a time from being upon his feet, in using daily cold water (or cold salt and water) bathing, and all other such measures as shall promote the general health, and strengthen the frame. Though taken off his feet, the free use of his limbs should be allowed, or they become weakened instead of stronger.

Exercise for older Children.—Fortunately no inducements are needed for a healthy child to take exercise. He takes it spontaneously, and the exuberance of his energy and spirits needs neither curb nor spur, but only judicious direction. "At all ages, health must be worked for, and health and bodily exercise cannot be separated from one another;" * the child is simply fulfilling the intuitive guidance of Nature.

But, as I have before stated, all children cannot be treated alike. To some children, weakly and delicate, the ordinary walk in the parks (if in town), or the ramble through lanes and fields (if in the country), is as much as their strength is

* Dr. Robertson.

equal to, and as much exercise as they can take with advantage. And there is a very great deal of good to be gained by children from the mere exercise of walking, provided it is not allowed to degenerate into a spiritless lounge; it develops the muscles of the legs and loins, and if the children are also encouraged *to run* (either with hoops or without them), the muscles of the back and chest are also called into action, and the chest itself is expanded and the respiration exhilarated. Slow walking is of but little use to any one as a sanitary measure; it should be quick and brisk. Such large numbers of the children of our towns appear to be almost shut up to walking as the only out-of-door exercise that they can take, that it is one by no means to be despised, but rather to be made the most of; and where, as in the country, a walk can be made to include all sorts of games, leaping, running, climbing, and so forth, nothing could be better. But nevertheless, for a large majority of English boys and girls, the usual tame "constitutional" is not enough. It does not afford a sufficiently wide outlet for the boiling over of their fun and vitality; neither does it equably exercise and develop all the muscles of their frame, those of the arms, back, chest, and abdomen being left almost inactive. To ensure these two essentials we must give them games and sports, out of which, if rightly directed, double the enjoyment and double the hard work is to be got. Even the boisterous merriment and noise of these pursuits is good for them physically. How the chest is expanded, and the lungs exercised and strengthened, by the shouting and free and loud use of the voice that always is heard throughout the games of childhood and youth! By their very noisiness they are unawares making use of a very important means of health. But on this point let us hear Sir Richard Carswell.* "Whatever kind of employment or

* "Cyclopædia of Practical Medicine;" article on Tubercle.

mode of life, necessitates or facilitates an active and ample display of the respiratory function, is generally admitted as a powerful means of preventing the occurrence of tubercular phthisis;"—or in plain words, a *free* use of the lungs is a strong preventive of consumption.*

Games and Sports must of course be chosen according to the strength and age of those for whom they are intended. As I am writing on the management of children for the most part under ten years of age, there are very many excellent pastimes that I need not allude to, as they are unsuitable to those so young. But I will indicate a few that combine moral and physical advantages, and which such as those that I am speaking of can take part in.

Riding can be easily learnt (and *is* learnt) by quite young children, and there is no finer or more bracing exercise for them. Their pony becomes their companion and friend. Riding is an admirable adjunct to walking in the maintenance of health; for it calls many muscles into action that are otherwise but little used, especially those of the abdomen and back; and it stimulates the liver and bowels, promoting their proper action. In some conditions of weakness of the spine from relaxation of its muscles, riding is an invaluable remedy. Nor should the exhilarating effect on the mind that horse exercise produces,—the mental and physical *tone*,—or the fearlessness and self-reliance that it gives to the character, be omitted from a statement of its benefits.

Let no mother, timid of the water, be alarmed that I recommend *swimming* as a splendid exercise to be taught to children. It is a fact that may surprise some, but none the

* With reference also to bodily exercise, after alluding to the fact that children are much more rarely afflicted with pulmonary consumption than adults, Sir Richard goes on to say that he attributes this "to the much greater activity of the lungs in children than in adults."

less a fact, that with judicious management children may be taught to swim at no long period after they have learnt to walk; and numberless examples go to show that at six or seven years old they may swim *well*. Therefore, where facilities exist, and a reliable teacher can be obtained (and the father is the best, if capable), children should early be made familiar with this valuable and most healthful accomplishment. Nearly all the muscles of the body are thereby thrown into active exercise, and the respiration is developed; the sanitary effects of the bath, accompanied by brisk exercise, have already been extolled (page 97). Here again, too, the moral effect is thoroughly good.

Among simple games and amusements in vogue amongst children, skipping and "fives" or "tennis" may be mentioned, as giving capital equable exercise to the muscles of the body without being over laborious; and any others are also good that fulfil these two conditions, of bringing into full action both the upper and lower limbs, and of not causing too great fatigue. The constant running and leaping that many games include is very healthful, but the practice of racing is not to be commended. It is quite possible for heart disease to be engendered, or any weakness of that organ to be aggravated in the young and tender by over-exertion in running; therefore no very exciting objects should be allowed in children's sports, that might stimulate them to overtask their strength; nor should a weak child be permitted to match himself against a strong child, nor even a strong one against one much older than himself. For children of from eight years old and upwards, a proper course of gymnastic exercises, under the tuition of an able teacher, is a most excellent thing, fulfilling all the desired ends of exercise, and at the same time capable of being pursued within doors.

Exercise for Girls. It is very much to be re-

gretted that in the education of girls, exercise worthy of the name is almost universally neglected. Can anything be more depressing or unlikely to do good, than the demure and formal processions of school-girls, both young and old, that we meet in our walks, who, by a pleasant fiction, are supposed to be taking exercise? Why should it be considered hoydenish for a girl to throw herself heartily into play? Has she not muscles, and a frame to be developed, and health to be preserved, at least as much as any boy? and by what other means can she effect these objects? The foolish restrictions placed upon the due activity of girls, and the way in which only too many of them are encouraged to dawdle and lounge through their early life, are creative of nothing but moral and physical evil in their results. Who can wonder at an enfeebled or diseased offspring, if the mother (who is simply the girl grown older) is enervated, feeble, and ill-developed? Let parents and teachers remember that in their girls they are educating the future mothers of our race, and let them act on rational principles; never forgetting that the cultivation and development of their bodies, and the strengthening of their health, by this only available means of *active* and *stated* exercise, is at least as important as the education of their minds, their morals, or their manners.

It is a point of no small moment to many parents that their daughters should have a graceful figure and a good carriage. Let them then rest assured that there is no means so certain of producing both one and the other—the beautiful curves of a well-developed form, and the fine, unstudied pose of wedded health and strength—than *early* and *systematic* education of the body in the various forms of exercise. If favoured in form by Nature, a girl may thus gradually and unconsciously assume the grace of an Aphrodite, or the carriage of a Diana.

No girls' school is complete in which one room is not fitted up as a gymnasium. So many healthy games are tabooed to girls, that they must perforce be partially content with calisthenics or gymnastic exercises, which however, when intelligently managed, are excellent in themselves. Dancing is a capital amusement and exercise; but it should be practised by daylight, not by gaslight, nor in hot rooms.

Precautions. Some precautions to be observed in respect of children's exercise have been given *en passant*, but a few others should be mentioned. Care should be taken when they are in a state of heat or perspiration from exercise, that they do not lie down or sit upon the cold and damp ground, nor remain in a strong current of cold air in the shade; and they should certainly be restrained from drinking cold water altogether, if they are *in process of cooling*, though there is no reason for disallowing it in *small quantities* and *at intervals*, if active exercise *is still going on*, however hot the child may be. The same rule holds good if children are being taken to bathe: and I mention it because a widespread error prevails upon the subject. Let them hasten to the bank of the stream or the shore, lose no time in undressing, and, no matter how hot they are, go in *at once*, but they should never be allowed to loiter about the side, and then plunge in while the process of cooling is going on.*

The relation of Mental to Physical Exercise. Parents are apt to be extremely puzzled amidst the multiplicity of counsellors, as to whether they ought to devote

* "You may admonish the bather that after walking on a hot day to the river side, he had better *not* wait, to cool himself a little, before he plunges into the stream; and in like manner you may venture to counsel the young lady who has heated herself with dancing, not to linger in the entrance-hall till the glow has somewhat subsided, but to make the best of her way to her carriage, and thence to her bed."—(Sir Thomas Watson: "Lectures on Principles and Practice of Physic.")

most attention to the bodies or the minds of their children. The old adage, "All work and no play makes Jack a dull boy," has its counterpart in another truth,—All play and no work makes him a duller one still; so it is obvious that the truth lies in a course between the two. Let us have neither a young Hercules, nor that pitiable spectacle, an Infant Prodigy.

Without doubt, in the earlier years of childhood, the mind should lie fallow as regards all lessons or set teaching. There is a world of things for a child to learn, all-important and never forgotten, that come not from books, but that are *absorbed* as it were by his growing intelligence, as it looks out upon a life full of new and wonderful experiences. As the child advances in years, according to his bodily or mental strength, the mind comes in for its share of regular cultivation; but until eight years have passed, "lessons," though regular in their occurrence, should be but brief, and mingled with a preponderance of bodily exercise. The mind has not yet strength enough to bear *active* cultivation, but the body has; therefore let us turn our attention to that which most demands it. In after years, when the then developed mind is working hard, the strong and hardy body, which is the result of early training and activity, will stand it in right good stead.

To maintain "the healthy mind in the healthy body," both must always work more or less side by side, neither must be idle; but it is a wise policy to lighten the mental load in childhood, in order that the heavier burden may be more safely borne by the mind in youth and manhood.

Section II.—On Sleep.

The sum and substance of infant life during the first two or three months, is comprised in feeding and sleeping. The child awakes to feed, and shortly goes to sleep again. And

in doing so he is unconsciously justifying the perfection of the natural laws that govern our being. During sleep the wear and tear of tissue, and expenditure of strength, that we have seen are caused by all motion, activity, and thought, no longer go on. It is a period devoted to restoration, and the accumulation of fresh material and nervous force. Let us consider what is the condition of the infant. His vital energies are most feeble, his strength mere weakness, and all his small resources are taxed to produce constant supplies of fresh material. In other words, the first duty that Nature imposes on him is *to grow*. This long quiescence of all his powers, this almost continuous sleep, interrupted only to take in nourishment, supplies every favouring circumstance that both his low vitality and the necessity of growth demand.

Just as the powers of the system develop, will his activity increase, and the period of his sleep diminish. If he is healthy, Nature will prescribe and administer sleep in proper quantity, and we have nothing to do in the matter but to aid her indications, and remove whatever may impede her work.

In the constitution of man, there is a wonderful and beneficent law which we cannot explain, but which we call "periodicity," that seems to run parallel with external physical changes, such as day and night, summer and winter, and others, and that tends to produce in us the same condition of the system at regularly recurring intervals. It is very important to encourage this: and in nothing, perhaps, more than in the regularity of the hours of sleep. Unless this be attended to with infants and children, both they and their mother must be deteriorated in health thereby. If a child is encouraged to wake at any time and cry for food, or to be nursed, or if nourishment is always offered as a means of stilling crying that often does not arise

from hunger, nothing but restlessness and future trouble will be the result.

As soon as ever it is possible, both for the child's sake and her own, the mother should arrange definite times and periods both for feeding and sleeping; and endeavour to adhere to them as nearly as can be. To young and unpractised mothers this may appear a hard saying, but it is perfectly feasible by taking a little pains, as they will find to the advantage of both.

During the first two or three years of life, children should be accustomed to the habit of having a mid-day sleep: with those who are excitable and very energetic, the habit may be beneficially continued up to the fourth year. They require it; without it they become fretful and flag wearily in the afternoon, and go off to sleep too early in the evening, which causes them to wake at an inconveniently early hour the next morning. Perhaps the best time is from eleven o'clock to one—and many who are very young or weak will sleep again for an hour in the afternoon without being restless at night. A child should not be put to bed immediately after a hearty meal, when the stomach is actively engaged in digesting its contents, because the sleep of most children is thereby rendered restless and unrefreshing. During infancy it is hardly necessary (and indeed almost impossible), to observe this precaution; for an infant takes so little at a time.

Light should be dimmed and noise excluded, when children are put to bed. They may very possibly sleep in spite of both, and many consequently think that as long as they do so it does not matter. But this is a mistake. Noise and light keep alive nervous sensibility, and prevent the sleep from being as *thorough*, profound, and refreshing, as it otherwise would be. Let us only refer to our own experience in this.

No precise period can be fixed for the times of children's

sleep, or for the hours at which they should be put to rest, for so much depends on age, strength, temperament, health, and habits. But if a child sleeps tranquilly, awakes bright and refreshed, is active and cheerful, and with all the various functions in good order, we may rest assured that a good plan of management is being pursued, and need give ourselves no concern whether he sleeps an hour more or less, earlier or later than some pattern child of the same age whom the mother may chance to know.

But there is one rule that has no exception—a child should never be kept up late; it is altogether prejudicial. From the age of two to six years, bed time lies between six o'clock and seven, and from six to ten years, between seven o'clock and eight. A healthy child who has been trained in good habits, if all causes of excitement are withdrawn, will usually go to sleep at the accustomed hour; and if he will not, there is a reason for it. If no external cause can be discovered, there must be an internal one, his functions must be in some manner deranged, and he cannot sleep because he is not well.

Discomfort in the clothing, cold, overfeeding, or improper feeding producing acidity, flatulence, and distension, are common causes of fretful wakefulness. If the restlessness continues, and if the cause is not obvious and easily remediable by precluding all sources of external distress, by simple remedies for flatulence if it seem to exist, or by a short immersion in a warm bath—medical advice should be sought until health is regained.

Restlessness, or persistent want of sleep in a child, is extremely harassing and painful to the mother, and calculated to try severely the patience and fidelity of the nurse. But no matter to what extent this may proceed, it is *never* right for mother or nurse, or any unqualified person (except under precise medical directions), to administer any of the so-

called "soothing" compounds prepared by unscrupulous persons for the stupefying of luckless infants. Thousands of foolish mothers and ignorant and selfish nurses have constant resort to these dangerous and poisonous drugs, merely on account of their own laziness, and knowing or caring but little for the evil results that follow. Not a year passes in which unknown numbers of little ones are not thus "soothed" into their *last* sleep; and out of this number, probably only a *very* small portion indeed, find their way into the Registrar-General's Reports as poisoned. Their deaths being mysterious and not readily accounted for, are often certified (perhaps without thorough inquiry) as being due to some other cause; but, notwithstanding, there are more than sufficient undoubted cases left. In 1870, twenty-nine deaths of children under five years of age are returned in the Report of the Registrar-General, as having been caused in England by opiate drugs.*

During the first month or six weeks the mother should keep the infant in her own bed, both for the sake of warmth and for convenience; unless it is very restless and fretfu lat night, when the mother's welfare renders it necessary that it should be at once removed to the nurse's bed. After this time it should sleep in its own cot,† and the suspended cots

* From other poisons and drugs improperly administered, forty-seven deaths, besides, are registered in the same year.

† I think that healthy children, even from their infancy, should be accustomed to go to sleep in their own beds. If their beds are warm (as indicated above) there is no necessity for the extra warmth of another's body, which has the great disadvantage of exposing the child to the exhalations, &c., of its bedfellow. I am sure it is good moral training that the infant should not be "put to sleep" in its nurse's arms and then put into its cradle; when it has been fed, it should be put to bed turned on its side, and if the mother or nurse is sensible and persevering, the child will soon go to sleep with infinitely less trouble to all parties, will be less liable to wake at irregular intervals, and at the same time will be a gainer morally.—H. S.

are the best, because, being raised to the level of the mother's bed, they are so readily accessible ; and if rocking be of any service, they swing more gently and silently than the old-fashioned cradles. It is almost impossible to take too great care in keeping the infant thoroughly warm in his cot ; the room should be warm (temperature not less than 60°), the coverings should be light as well as warm, and nothing is so good an adjunct to the usual soft blankets as a small eider-down quilt. But though the body is well protected, the face should be left perfectly free and uncovered, nor should the atmosphere of the cot be rendered close and unwholesome by curtains ;—pure air is as needful as warmth. The bed-clothes ought to be kept very pure and clean, and this can only be done by the use of waterproof sheeting, by constant changing of the bed-clothes and linen, and by frequent exposure of them to the air.

During the first two or three years feather beds are the best for children, but after that time (or earlier if they are very strong) their power of generating heat has become sufficiently developed, and mattresses are every way to be preferred. Feather beds then become too warm and relaxing, inducing undue perspiration, and predisposing to the effects of cold.

There is one cause of mortality among young children of such alarming frequency, that it is necessary to allude to it, and the proper place for such an allusion seems to be here. It is a forcible warning founded on the maxim we have just been learning—keep a child as warm as you like, but always let it have access to fresh air for respiration. The Thirty-third Annual Report of the Registrar-General shows that in 1870 (and that year is merely a type of others), four hundred and forty-four children under five years old were suffocated by bed-clothes, and one hundred and seventy-one were "overlaid."

Here are six hundred and fifteen infants sacrificed in one year, and in England alone, to most unpardonable carelessness. The majority of the cases that are certified as "overlaid," are probably cases of suffocation by bed-clothes also; the actual overlying of the infant by the body of the mother or nurse is of comparatively rare occurrence, and is believed very seldom to happen, except when the latter are in a state of stupor and insensibility from intoxication. The poor little creatures get their heads covered by the bed-clothes, the access of fresh air is denied, they become stupefied by the carbonic acid generated from themselves and by the body of their nurse or parent, they sink into the profound insensibility or "coma" that preludes destruction, and in the morning, now and again, one of the little corpses of the six hundred and fifteen slaughtered innocents is discovered lying peacefully as it died. Loud and bitter lamentations are unavailing, nor does a coroner's inquest do much to reconcile us to the catastrophe: a very little ordinary and timely care, and the dead would now have been living.

PART II.

MANAGEMENT OF CHILDREN IN DISEASE.

GENERAL INSTRUCTIONS.

CHAPTER I.

ON SOME SIGNS OF DISEASE IN CHILDREN.

MANY and great difficulties are experienced by medical men in the determination and treatment of the diseases of children, from the mere fact of their *childhood* and imperfectly developed intelligence. "You cannot question your patient; or, if old enough to speak, still, through fear, or from comprehending you but imperfectly, he will probably give you an incorrect reply. You try to gather information from the expression of his countenance, but the child is fretful, and will not bear to be looked at; you endeavour to feel his pulse, he struggles in alarm; you try to listen to his chest, and he breaks out into a violent fit of crying," * in short, you not only get no assistance from your little patient towards gaining knowledge of his disease, but you also have innumerable obstacles thrown in your way.

If, then, such great difficulty is frequently experienced by the educated medical man, whose constant experience has trained him to extraordinary quickness in noting every passing sign, how much greater must be that which the mother feels, uneducated in medical matters, and with no training

* Dr. C. West: "Lectures on Diseases of Infancy and Childhood."

in methodical observation of symptoms, save such as is instinctive, from the anxiety and love of her motherly heart!

In the diseases of infancy and childhood we have nothing to guide us but what we ourselves can discover with our unaided senses; our patients can tell us nothing, and will rather hinder than help us. But it is very often of the utmost importance that the presence of disease should be detected *at the outset*, and that we should be able not only to say that there *is* disease, but also to tell *what* the disease is. One particular that is remarkable in the maladies of children is the suddenness with which they often come on, and the rapidity with which the favourable progress of a disorder may develop into an alarming condition with but scant warning. The sudden onset of an acute disease soon lays a little one low, and only *ready* knowledge applying *speedy* remedies is of any avail.

Another feature which characterises some diseases both of childhood and adult age, is the insidiousness of their approach. They steal on us unawares. How important is it that a mother should so educate her faculties of observation that she may be able to detect the latent mischief in her child, and obtain medical aid, before the disease has acquired formidable and full grown dimensions!

From all this it is obvious that the first thing to be done towards a rational insight (however slight) into the diseases of children, is to learn How and What to observe.

I presume that it cannot be necessary for me to state in detail what are the signs of health in a child: surely every mother must be familiar with these. But in a broad and general manner (as the limits of this work only allow) I will indicate the signs of disease, as deducible from various phenomena to which attention should always be directed.

The Expression of the Face.—Nothing is so evident to an observer as a change of expression, and it

will probably never pass unnoticed. But knowledge may be gained from *the kind* of change. A flushed and heated condition of the face speaks of fever. If the brows are contracted there is pain; and pain probably in the head. If the change of expression is chiefly observable in the upper part of the face—if, in addition to knitted brows, the eyes are vacant, staring or wild,—it is probable that the brain or some chief portion of the nervous system is affected. If the nostrils are dilated, twitched upwards and in rapid motion, together with a dark line round the mouth and eyes, the seat of the disorder is in the chest, *i.e.*, in the heart or lungs; probably in the latter. If the lips are slightly parted, exposing the teeth or gums, and colourless or dark brown, if the cheeks are hollow or sunken, there is pain and disease in some organ of the abdomen; probably the bowels.

Experience confirms us in ascribing changes of expression in the upper part of the face (brow and eyes) to pain or mischief in the head; in the middle of the face (nose and cheeks), to pain or mischief in the chest; in the lower part of the face (mouth, lips and cheeks), to pain or mischief in the abdomen.

It must be understood that this is generally true, not invariably.

Squinting, if it occurs during severe illness, is a very unfavourable symptom. If it occurs during convulsions (as it very often does), its import is not so bad: both may disappear together; but occasionally the convulsions subside and the squint remains—sometimes permanently. If the pupils of the eye are dilated equally, and are sensible to light, it is of no great matter, but if they are unequal, and if they are insensible to light, a serious condition is indicated. Very contracted pupils are present in inflammation of the brain, and after an overdose of opium.

When there is inflammation within the head, the face is

full, flushed, and hot,—or sometimes flushed and sometimes pale;—the eyes are often bloodshot as well as wild and staring; sometimes there is a slight dropping of the upper eyelid, sometimes squinting. Eyes sunken in their sockets tell of emaciation; but the dark sunken eye and even the squint is sometimes produced merely by worms. It should be remembered, however, that infants often squint because they have not learnt (for it has to be learnt) to look at an object with both eyes; indeed, there are few young babies who do not do this more or less.

In diseases of any portion of the breathing apparatus, other changes are seen. The face looks almost swelled and of a dull red; the nostrils are wide open and retracted, and moving quickly with each breath. The mouth is a little open to assist the breathing; and if the disease is severe, the lips will probably be dusky and livid: and the expression assumes a cast of extreme anxiety.

The sharpened, pinched expression of the features in the child suffering from abdominal malady is not easy to be mistaken. There is a fretful look; the lips are parted and often drawn tightly over the gums, sometimes pallid, sometimes dry, brown, and cracked. Slight swelling of the upper lip and a dull discoloured complexion is sometimes produced by worms.

Demeanour and Gestures.—At the onset of disease, the vivacity of children and the interest with which they take note of external things ceases, and is replaced by listlessness, apathy, and fretfulness. They dislike to be moved, and they will take no trouble, they cannot be amused, and seem too oppressed to smile. The child who has not long learnt to walk is "taken off his feet;" the infant who has been able to sit up will droop and become powerless, and universal languor makes it but too evident that health has given place to disease.

Mothers will have noticed how seldom it is that very small children raise their hands above their mouth; but if there is congestion or inflammation of the brain or any of its surroundings, the little hands are continually and vaguely tearing at the head, pulling off any covering it may have, or distractedly beating the air; while the head is rolled restlessly from side to side.

In croup, or other diseases attended with great difficulty of breathing, a child will squeeze its hands against its throat, or press them into its mouth; and if lying down, he will make efforts to sit up, in which position his agitation often ceases. Then there are the convulsive twitchings of the face during teething, or from the irritation of worms, which often prelude "a fit." If a child all at once becomes subject to sudden starts, either while asleep or awake, he should be carefully watched for other indications. If his thumb is found drawn backwards and bent inwards upon the palm, and the fingers tightly doubled over it, if a similar but less marked condition is observable in the toes, if the pupils of the eyes become dilated, and the eyes apt to squint, if the child is fretful, alternately pale and flushed, suddenly animated and as rapidly again prostrate, having disturbed sleep and occasional catches in the breath,—if (I repeat) we find all or many of these indications, we may be tolerably certain that an attack of convulsions is imminent.

When there is pain from inflammation within the abdomen, the child lies with his knees drawn up, so as to relax all muscular pressure upon it.

Then also there is the sinking down low in the bed, the constant restless tossing and the busy picking with the fingers, that we see in the later stages of acute fevers. Bad symptoms, all of them.

If a child who has arrived at an age when it might almost be expected to walk, cannot even sit upright, we are led to

suspect rickets; but this suspicion would probably be confirmed by deformity in some portion of the frame. Of course every one is familiar with the greedy mouthing of all substances—its own hands included—with which infants love to rub the gums that are irritated by the pressure of advancing teeth.

The Character of the Cry.—In the language of infants, the cry is an important part. All cries are not alike by any means, and with a little experience of babies, and with attention, a mother may soon discriminate the meaning of one from that of another. "Previous to speech, God has given to the infant a language," says the accomplished French physician Bouchut, "which philosophers call natural language. It is the language of signs . . . . and is only unintelligible to those who do not care to make the effort to understand it." *

There is undoubtedly the cry of hunger; but all crying does not proceed from this cause, though many mothers act as if it did. Its character cannot be explained in words, but it dies off on the infant getting the breast or the bottle, in a sort of quick, restless note of impatience, which suddenly stops, as he sets vigorously to work. A child who is crying from some other cause than hunger, will probably cease, also, on food being offered; but then he will begin again almost directly and with increased violence.

A very common cause of crying with infants is *cold*; the cry is a whining, long-continued, miserable one, but is soon put a stop to by a thorough warming before a good fire. They cry, too, from discomfort; a badly arranged dress, an awkward position; a neglected condition of their napkins, excoriations of the skin, and a dozen other little annoyances that a mother should ascertain not to exist, when her child persistently cries. And they cry from pain and disease;

* "Maladies des Nouveaux-Nés."

and in this case the character of the cry is occasionally distinctive of the malady. There is the cry of croup; solitary, metallic, ringing, and afterwards becoming hoarse and muffled; of inflammatory diseases of the brain, a single sharp loud cry coming only at intervals; of inflammation of the lungs and bronchitis, smothered and distant-sounding. Then there is the cry indicative of pain and congestion in the stomach or bowels, which is a low moaning or wailing rather than a cry, and piteous to hear.

If a child cries violently (no external cause being known), that child cries from pain, and that pain in nine cases out of ten will be found to proceed from indigestion and flatulence, or *wind*. And, notwithstanding the innocence of childhood, there is the tearless cry of *passion*,—quite unmistakable. This is a matter requiring the tact and judgment of the mother, and falls not within the realm of medicine.

Infants shed no tears until they are three or four months old, because they have none: none are secreted until that age. The function is apt to be suspended in older children by acute disease; and on this fact the French surgeon, M. Trousseau, has founded an observation. In his opinion, if during acute disease, no matter of what severity, the child *sheds tears*, his chances of getting well again are good; if he does not (being of course a child in whom tears have once been secreted) his chances are bad; especially if the eyes are sunken.

The Sleep.—The tranquillity and repose of the sleep of infants in health is familiar to every mother, so too is its long continuance and the freshness produced by it in the baby on awaking. But quite otherwise is it when the functions are disordered, or when disease has set in. The child may sleep, but it is not with tranquillity; and he sleeps in snatches and wakes suddenly with a cry. Or the sleep is restless, and interrupted by tossing, with a hot skin and

occasional low moans, and the little one awakes miserable and unrefreshed. Sometimes a contracted brow or grinding of the teeth speaks of pain and irritation; or sudden starts occasionally occur, indicating nervous mischief. Heavy, unrefreshing sleep is sometimes caused by a stomach unduly full, by teething, by oppression of the brain—or even by a dose of "soothing syrup" surreptitiously administered by an unscrupulous nurse.

The Pulse.—Since very many mothers do not know exactly where to find the artery whose beating forms "the pulse," nor how to proceed when it is found, nor indeed what it is, I had better give some plain instructions on the subject; more especially as it is now and then no easy task to count an infant's pulse.

Every time that the heart beats, it drives a gush of blood along all the arteries that proceed from it, to every portion of the body; and the beat that we feel under our finger, when we place it on the pulse, is the rush of this wavelet of blood along the artery. It occurs a fraction of a second after every beat of the heart, and thus tells us how that organ acts. But it tells us more than this. According to the condition of health and strength that the body is in, will this little tide of blood have a particular manner of flowing, and will the artery itself have a distinctive feel.

Any artery in the body, whose beating can be plainly felt, will do as well as another, but it is usual and convenient to feel the one at the wrist. If the arm is so placed that the palm of the hand is upwards, the pulse (or radial artery) will be found lying just on the inner side of a tendon on the outer edge of the upturned wrist, and at a short but variable distance from the root of the thumb. If the hands are not easily accessible, or if the child is very restless, the information may be readily obtained by a finger placed on an artery to be felt on either temple. With a watch marking

seconds in the hand, it is usually an easy thing to count the number of pulsations in a minute. But the mere rapidity of its beats is only a small portion of the information obtained by medical men, by placing their finger on this artery. Their sense of touch becomes educated by practice to ascertain its "hardness," "softness," and "tone"; they speak of it as "wiry," "hammering," "small," "jerky," "full," and by other terms recognise a condition of the circulation which is full of instruction to them. None of this can be imparted by book; it is what only long and attentive practice will teach. Therefore I will only speak briefly on the *frequency* of the pulse, which often gives most useful and reliable indications, though in a much less degree in the diseases of children than in those of adults.

The average pulse of an infant at the breast is about 132 per minute, more or less according to age;* from about the time of weaning (ten months), the frequency of the pulse diminishes, and the average frequency in children between one and five years old, is about 104.† As childhood advances to youth, and youth to manhood, the pulse still decreases in frequency till it remains stationary at an average of 80, for adult life. "In young infants no signs can be deduced from the fulness or hardness, the strength or weakness, of the pulse, since generally these distinctions cannot even be recognised." (Tanner.) Irregularity of the beats, which in the adult would be indicative of undoubted disease, in the child often occurs when no ailment is present. The pulse is diminished in speed during sleep by 15 or 20 beats and also becomes more regular. Coughing, mental

* This average is obtained from the results of the observations of Haller, Sœmmering, Billard, and Trousseau.

† In children at the breast "the average number of 118 to 120 is that which is usually met with. Above two years of age the average varies between 92 and 100 up to the seventh year."—BOUCHUT.

agitation and crying will raise the pulse considerably, sometimes adding as many as 40 beats a minute.

Thus we may readily believe that in infancy but little valuable information can be deduced from the pulse, and that even in childhood more can be learnt by *the feel* of it, than from the number of its beats; so easily is the heart affected in these tender years, by all causes. A very slow pulse is a sign of a certain condition of disease of the brain. When a rapid pulse is persistent, and accompanied by heat of skin and restlessness, then only does it indicate fever.

The Breathing.—There is a close connection between the pulse (or action of the heart) and the breathing. The faster the heart drives the blood into the lungs, the faster of course must be the breathing that aërates and purifies the blood; and *vice versâ*. We find by observation, that the proportion of the number of beats of the heart to the number of breaths drawn, is about one breath to three and a half beats; or as two is to seven. This proportion is irregular in early infancy, but becomes more marked as life advances. In a very young infant the chest is but little expanded in breathing, nor are the air-cells of the lungs fully dilated, but we see instead, alternate rising and falling of the surface of the belly, which shows that another important set of muscles is doing the work for the present.

In children at the breast, the average number of respirations is about 39 per minute; but as with the pulse so with the breathing, any passing emotional disturbance may raise the number for a short time much higher than this—even to 60. As the child grows older the rapidity diminishes, but it often does not go below 30 during childhood. During sleep the breathing is tranquil and regular—much more regular than when the child is awake—and it is also slower, probably averaging not more than 30 to the minute.

I speak of all these facts because it is impossible for a

parent, or any one else, to recognise disturbance of respiration caused by disease, until they know something of its nature in health.

In croup, or in inflammation of any part of the windpipe or throat (or *larynx*), the breathing is noisy and drawn with difficulty, but it is also accompanied by cough which is often characteristic of the complaint. Thus it is a crowing cough in croup, metallic and ringing in inflammation of the throat, and hoarse, choking, and convulsive in inflammation of the narrow chink in the throat (or *glottis*) through which we breathe. Many *children* too—not infants—suffer from asthma; their breathing is noisy and very laboured, and they sit upright and gasp for breath, with flushed and anxious faces, and look as if in serious danger, when in reality they are not. In bronchitis the respiration is hurried, and soon becomes wheezing as well; the cough is at first dry and hacking, and the child is described by the mother or nurse as being "tight on the chest;" but the cough afterwards becomes "loose," phlegm is coughed up (though always swallowed and not spit out), and the breathing gets easier.

In inflammation of the lungs, the breathing is usually affected at first in much the same way, and the cough is much the same; but as the disease develops itself, the breathing becomes so rapid as to be absolute panting, with 60 or more respirations in a minute; and the cough becomes violent and moist. When pleurisy is coming on, there is hurried breathing also, and a short, dry cough; but as the pain, which is so distressing a symptom of this disease, begins to be felt, we see the child breathing, as it were, under self-restraint. He seems stopped, often, in the middle of a respiration, by a sort of spasm; and so he is, for he *dare not* breathe fully, on account of the pain it gives him. This is also the case in inflammation of the bowels; the breathing is short, suppressed, and jerky. The child tries instinctively

to save the muscles of his abdomen from taking part in the act of respiration, for fear of the pain their movement causes. It is very important that a mother should recognise as early as possible, any deviation from health in the respiratory organs of her children, and early obtain advice; for this is a class of diseases that are usually manageable and subject to treatment, when taken in hand at the outset, but become difficult to control by the most skilful means, when fully developed, and but too often run on unchecked to a fatal ending.

Temperature, or the Heat of the Skin.—In the hands of medical men, this is becoming yearly a more and more valuable aid in giving a knowledge of disease; and it is quite possible for parents to gain sufficient information on the subject, to enable them intelligently to assist the physician who attends their child. Or at least, now and then, they may be able by this means to allay any uncalled-for alarm, which the seeming condition of a child may have inspired; or—more important still—they may thus timely detect the first approach of serious fever.

Temperature, in the diseases of young children (under five), is probably a more reliable guide in many severe maladies than the pulse. But to have this value as a symptom, we must estimate it more accurately than by the ready and often fallacious method of placing one's hand on the skin; and the means of doing this I will presently describe. The average temperature of the body in healthy children is about 99° F. Although there is nothing that varies more than the external temperature of exposed portions of the skin, yet the *blood-heat*, or internal temperature, remains the same as long as health lasts. Dr. Tanner considers that a variation from this temperature as far upwards as 102 degrees, or as 97 degrees downwards, is a sure sign of mischief. He then goes on to say that "an increase to

102 degrees or 103 degrees signifies only a moderate degree of febrile disturbance; a constant rise to 105 degrees implies severe disorder; 106 degrees to 107 degrees denotes danger, and 109 degrees or 110 degrees is indicative of *extreme* danger."*

As I come to speak of diseases attended by great elevation of temperature, I will give whatever details may be useful. It is sufficient here to state, that temperature indications are of most value in fevers, such as scarlet fever, typhoid fever, typhus, or small-pox; in acute inflammations, such as bronchitis and inflammation of the lungs; and in some severe forms of strumous disease. In diseases accompanied by a rise of temperature, the greatest height is usually observable towards night, and it is lowest in the morning. The diminution of the night temperature is a good sign.

One instance will show how the knowledge of temperature may be turned to account in on-coming illness. A child, after a day or two's slight indisposition, becomes extremely restless and thirsty, with hurried breathing, hard cough, and rapid pulse; these symptoms taken together are common to the onset of three or four diseases, but when we proceed to ascertain the temperature and find it to be 104 degrees, that almost settles the matter,—the disease can hardly be other than inflammation of the lungs.

I said above, that to be of any use, we must employ an accurate method of ascertaining the temperature, and we only find this in the thermometer. Instruments especially prepared for this purpose, and called "clinical thermometers," are now sold by all surgical instrument makers, at no heavy price. A clinical thermometer consists merely of a slender glass stem, graduated in degrees and in fifths of a degree, and with an extra mark placed at the line of the ordinary

* "Diseases of Infancy and Childhood." Edited by Dr. Meadows.

temperature of health. At one end it expands somewhat, into a long oval bulb containing the mercury. When it is used, this bulb should be placed in the child's armpit, not in contact with his clothes, but everywhere well pressed upon by his skin (the stem sticking out either in front or behind), and kept in position by gently holding his arm to his side. It should remain there for six or seven minutes, or more if the child is quiet. On withdrawing it the temperature should be accurately noted to the fraction of a degree. The thermometer should be self-registering, and the peculiarities in the mode of use of such a one, will be more readily explained by the instrument maker who sells it, than by a verbal description of mine. If the thermometer is not a self-registering one, the temperature must be read off before the instrument is removed from the child's body.

I have entered into detail here for this reason amongst others: medical men often suffer from the want of intelligent co-operation among their patients. It would be a great aid to a hard-worked medical man, if the mother of his fevered little patient would charge herself with the duty of registering the temperature at hours when he could not easily be present, provided she did it accurately. Much trouble might thus be saved and much advantage gained.

The Mouth and Tongue.—An almost invariable event of the doctor's visit is the glance at his patient's tongue; and the "unruly member" frequently helps him to valuable information. In health, the mouth of an infant or a child is cool, moist, and of a uniform, deep pink hue. The tongue is smooth and the breath has no smell, unless in the case of a child at the breast, when it may have the odour of sourish milk. But very many variations from this condition may be produced by ailment or disease.

In painful teething the mouth becomes hot and the gums red and swollen; while, sooner or later, an excessive flow of saliva is caused by the irritation. In bad cases of fever and inflammatory diseases, such as typhus, small pox, measles,

inflammation of the lungs and croup, the tongue is often seen to be swollen and covered with a dryish brown fur—always an ominous symptom. In scarlet fever there is a condition of the tongue characteristic of the complaint: it becomes swelled, covered with a thick white fur or film, and interspersed with red specks (the enlarged papillæ); but when the fur clears away it is left unusually red and clean, while the little elevations that before formed the red specks now look redder, and the whole appearance is not inaptly described by the name that has been given to it, of the "*strawberry* tongue."

A hot mouth, hot and offensive breath, and a tongue covered with a creamy white fur, may be merely symptomatic of temporary stomach derangement; or being taken together with other symptoms may indicate approaching fever or inflammatory disease.

White, granular, thrush-like spots (aphthæ) are common in the mouth and throat, and on the tongue, during infancy. According to other symptoms accompanying them, they may be referred to the irritation of teething, to improper or insufficient food, to disorder of the bowels, to various serious blood diseases, or to the fact of the child living under bad conditions of light, air, and nutrition. Fever or a disordered stomach may make the breath foul; but the bad odour caused by the one is very different from that caused by the other.

As we have already seen (p. 26), no saliva is secreted until towards the time of teething; the mouth is kept moist by its own mucus.* The reason that infants "dribble" so profusely until the teeth are cut, is simply because the teeth that are destined to retain the saliva in the mouth are absent, and because the ordinary flow of the secretion is increased by the irritation of the mouth and gums.

* Or the secretion from the mucous membrane lining it.

The Skin and Flesh.—It is surely unnecessary for me to describe to any mother the external condition of a healthy child; if she cannot appreciate this without instructions, no words will efficiently point out to her its deviations from health. But it may be right to allude to the fallacy in accordance with which the health of a child is measured by its fatness. An excessively fat body is never a healthy one; its very fat (even though it be *firm* fat, so prized by some mothers) is the result of an almost morbid process; and an excess in one direction is as abnormal as an excess in the other.

Symptoms of disease may be found in the heat or coldness of the skin, in its moisture or dryness, in its colour, or in the want of smoothness of its surface. A hot, harsh, and dry skin accompanies all feverish and inflammatory maladies, just as extreme prostration of strength and constitutional debility are characterized by a cold and clammy one.

Then, as to colour. There is the deepening redness which warns us to be on the look-out for eruptive fevers, and to be ready to isolate the patient if the complaint should prove infectious. There is "the sudden, fugitive, and intermittent red colour of the face which is the certain sign of acute brain disease" (Bouchut): there is the dull leaden tint* which supervenes in children afflicted with thrush, diarrhœa, or chronic inflammation of the bowels; and there is the purplish hue and livid blueness of difficult breathing and impending suffocation. Yellowness of the skin, of the white of the eyes, and of the surface under the tongue, sufficiently indicate disorder of the liver with obstructed bile ducts (rare in young children); while we very frequently see the roughened, reddish colour of the face and eyes, preceding measles. Dull, reddish, coppery-coloured patches indicate

* By some described as a sallow hue; but really something between the two.

the existence of a certain hereditary taint; pallor, with a soft, doughy condition of the flesh and wasting, points only too often to scrofula in its various forms.

Many eruptions on the skin are diseases in themselves,—"skin diseases,"—and must be identified accordingly; and a mother should allow no unusual appearance of the skin, nor any rash, unless of a very temporary duration, to pass unheeded or unexplained.

The Evacuations.—Under this heading we will consider the evacuations of the bowels, the urine, and the occurrence of vomiting.

The first motions of a new-born infant are of a dark greenish-brown or almost black, very sticky, and with an odour somewhat like that of perspiration. But after this has all passed away, the stools in health become, and continue through infancy, light yellow in colour and of a soft curdy consistence, something like thin mustard and having very little smell. Two, three, or even four of these motions will occur every day, according to the habit of the child. But as childhood succeeds to infancy, the daily number of them will be diminished, they will become darker and more firm in consistence.

The bowels of infants and children are very sensitive and most easily affected, and diarrhœa is readily induced and proves one of the most fatal disorders of childhood. Diarrhœa may be caused by impropriety of diet; that is, by giving too much food even of a suitable kind, or by giving food of an altogether unsuitable kind. It may be caused by any irritation of the stomach or bowels, *e.g.* by the irritation of teething. Various inflammatory and strumous diseases of the bowels will occasion it; and their ulceration in typhoid fever seldom fails to produce it severely. Motions full of slimy mucus (likened often by mothers to jelly) are usually indicative of the presence of worms, or of the irritation

of teething. Offensive, acid, pale green evacuations are symptomatic of disordered digestion. "A dark green colour of the discharges, generally indicates serious disease of the stomach or intestines" (Dr. Tanner). It should be borne in mind, however, that calomel, which enters into the composition of so many "fever powders" and "purgative powders" for children, always causes the evacuations to become green, after a manner that some have compared to chopped spinach. Thin, copious, rice-water-like stools show a degree of exhausting diarrhœa—perhaps of cholera—that unless checked will soon prove fatal. Thin, dark brown, bad-smelling evacuations are characteristic of chronic diarrhœa. If a motion is *shot out* with considerable force and escape of wind, it is a sign of great intestinal irritation. Firm, curdy, putty-like motions, causing constipation (which is rare in infants) and great pain in passing, are caused by acidity, whereby the milk becomes too solidly coagulated, masses of indigestible curds being formed, and also by derangement of the liver preventing a sufficient secretion of bile.

We cannot learn much from the state of the urine in infancy, since we cannot easily procure a specimen of it to examine. If, however, the napkins into which it has been passed, give off a strong pungent or ammoniacal * odour, or if the child cries while passing it, or if the skin becomes much irritated and inflamed by brief contact with the wet napkins, we may be sure that the health of that child is disordered. And the disorder (determinable by the presence of other symptoms) will probably be either of a feverish nature, or resulting from acute disturbance of the digestion. The same conditions are indicated in children, by the water being scanty, of strong odour, dark in colour, and depositing a reddish-yellow sediment on standing. In irritation of the bowels from worms, and in some disorders of the brain, it

* Smelling like ammonia or hartshorn.

is white and thick—almost milky in fact. Sometimes during teething it is very light in colour and abundant. It is a very unfavourable symptom if, after scarlet fever, it becomes all at once scanty in quantity, and dark and smoky-looking in appearance.

Infants whilst they are being fed from the breast or the bottle, constantly vomit; simply because they take more than their stomachs can deal with, and not necessarily from any defect in the food or milk. Nature relieves herself by throwing up the surplus. Vomiting thus caused appears to be perfectly painless, and in fact rather gratifying than otherwise, for infants usually seem much refreshed and cheered by the process. But there is an altogether different kind of vomiting, constant, evidently distressing, ineffectual. When it is of this character, it is often one of the earliest symptoms of serious disease of the brain; and if it occurs in children from three years old and upwards, and without regard to any food having been recently taken, it is more likely than ever to foreshadow such disease. Diarrhœa (especially if severe) is often accompanied by vomiting; and scarlet fever, small pox, and other febrile diseases are often preluded by it.

Ordinary vomiting accompanied by pain in the stomach, and occurring but once or twice, is usually connected with undigested or improper food.

It must be obvious from what has now been stated, that in the examination of a child in disease, and in the determining of his malady, it is necessary to note, not one symptom only, *but all;*—to correct the knowledge obtained from one symptom by that obtained from another, and to combine the information received from every source, if it be possible, into a harmonized and rational conclusion. One isolated symptom is often only of value in proportion as it serves to interpret others.

CHAPTER II.

ON THE ADMINISTRATION OF MEDICINES TO CHILDREN.

WHENEVER it becomes necessary for me to speak of medicines or of the treatment of disease, I cannot but feel that, in a work like the present, I have to avoid the rocks of Scylla (in giving scanty and inexact information) on the one hand, and the whirlpool of Charybdis (in saying too much) on the other. In other words, edged tools, such as are powerful medicines, must not be lightly put into inexperienced hands; nor yet, writing as I am for the benefit of those amongst others, who are cut off from medical aid, can some general but makeshift knowledge on the subject of medicines and their action, be left altogether unimparted.

Even those parents whose medical adviser is always within easy call, cannot reasonably be expected to consult him on all the trivial ailments and passing derangements of infancy and childhood: neither should they delegate the superintendence of home treatment to an ignorant nurse, whose only knowledge is a time-honoured store of old wives' fables. But the mother, in such little things, should attend to her children herself; having previously gained some such general insight into children's disorders, and into the use of ordinary medicines and healing agencies, as a treatise of this sort will give.

It may be generally stated that *the less medicine children take, the better*. Their constitutions are delicate and very easily affected by drugs, and *in a large number of cases*,

dietetic measures, with alterations in the mode of living, or with baths and regulated exercise, will take the place of medicines efficiently and advantageously.

Nothing that can be said on the subject of medicines for children can be better expressed than in the five rules of the late Dr. Tanner.* I therefore give them here :—"(1) Many of the diseases of early life may be arrested by very simple treatment if promptly applied. (2) Drugs are sometimes unnecessary where articles of diet can be made to serve as medicines. (3) A marked disposition exists in infants and children to be easily affected by some medicines, especially those which exert their influence on the nervous system, such as narcotics and stimulants. (4) Those remedies only should be employed, the composition, and modes of action, of which, are best known ; while of those which are suitable, the least irritating and the most simple should be chosen. (5) We should try to make the dose as small and as palatable as possible, not only from motives of kindness, but especially because the forcible administration of nauseous physic to the young often does harm."

There are certain drugs, the peculiarity of whose influence upon children should be known and always borne in mind.

Opium and all its preparations—laudanum, morphia, syrup of poppies, Dover's powder, paregoric,—have a most powerful influence even in minute doses, and cannot be used with too great care. A dose that would be borne by an adult, and that, too, with positive benefit, would be amply sufficient to *destroy* many babies. Except under medical supervision, or with explicit medical directions, no nurse or mother has any more right to administer an opiate or other narcotic to a child, than she has to endanger its life by violence.

* Page 70. Work previously quoted.

On the other hand there is a drug, against which, from the occasionally unskilful or careless use that has been made of it, some degree of prejudice may have arisen among the medically unlearned. I allude to *Mercury*. It is, however, well borne by young children. Salivation and other ill consequences are very rarely known to occur. And this is fortunate, since, carefully used, it is a safe and most valuable remedy in the treatment of many diseases of children. It is well known in the nursery (*too well* known, I may say) under the name of "Grey Powder." (Mercury and Chalk.) *Antimony*, another very useful remedy, is for the most part well borne by children. *Stimulants* of all kinds should only be given with great care, and with a knowledge fortified by experience.

Purgatives.—Few things are more to be deprecated than the continual administration to children of "opening medicine" as a panacea that is to cure every ill. There are many mothers who are more systematic. As the spring time arrives, the cleansing of their children (with purgatives) precedes the cleansing of their house (with soap and broom). In accordance with a tradition that has been handed down from remote posterity, they believe that this process is necessary at this particular time, for the purification of the blood, and the "cleansing of *humours*." Need I say that "this also is vanity"?

It should by no means be supposed that all purgatives are alike in their action. They differ as widely in the way in which the various classes of them act, as do the different fluids that constitute the drinks of man.

For children, we must above all things select such purgatives as are mild, easy, and unirritating in their action, that do not gripe, and whose after-effect is not to constipate. Amongst such are,—

Simple Laxatives.	Simple Purgatives.
Figs.	Magnesia.
Prunes.	Castor Oil.
Honey.	Rhubarb.
Treacle.	Senna.
Manna.*	Jalap.
Tamarinds.	Grey Powder or Calomel.

Manna is a little apt to gripe, but by giving it in a little weak peppermint water, this is obviated. Dose : half a drachm † to half an ounce. It is only used for infants.

Tamarinds—can be made into a whey by boiling the pulp with milk and then straining. Dose : a quarter of an ounce or more.

Magnesia, either alone or mixed with rhubarb, is a time-honoured institution of the nursery, and justly dreaded by the little folks. There is so much of it in a dose, and it is so nasty, though safe and effectual. A better form for infants is Dinneford's Fluid Magnesia, sweetened, or given in their milk ; or for older children a little of the calcined magnesia, sugared, and given in milk,—or a dose of the effervescing citrate of magnesia. Magnesia saturated with lemon juice, will often be retained by an irritable stomach when all other purgatives are ejected. It has, moreover, the advantage of counteracting any acidity that may exist. Dose : of the Fluid Magnesia—for an infant, two or three teaspoonsfuls or more; of the Calcined Magnesia—for a child—ten grains or more.

Castor Oil is safe and good for children of all ages. It acts quickly, does not usually gripe or irritate, and if there be *need* to use it repeatedly, the dose may be continually diminished instead of increased, with an equally good result. To

* The dried saccharine juice of the *Fraxinus ornus*.

† For explanation of weights and measures, refer to the commencement of the Appendix of Prescriptions.

children who take medicine badly it may be given beaten up with egg, loaf sugar and hot milk, or simply floated on hot milk out of a scalded tea-cup. For another agreeable form of taking it, see Prescription, No. 61. Dose: half a teaspoonful to one teaspoonful.

Rhubarb—contains certain astringent principles which cause it to constipate when its purgative action is over. This property makes it useful in cases of mild diarrhœa; it first evacuates the canal of all offending matter, and then puts a stop to its further action. Excepting in such cases it is not often given alone; but either combined with grey powder (as an alterative), with magnesia, or with carbonate of soda. The famous Gregory's Powder consists of rhubarb, magnesia and ginger (see Prescription, No. 40), and though very nasty, is often a useful preparation for children, when given in moderation. The administration of rhubarb causes a red coloration of the urine, and sometimes even of the perspiration. Doses: of rhubarb in powder, two or three grains for a baby under one year—four to ten grains for a child above this age; of the Syrup of Rhubarb, half, to one and a half teaspoonfuls; of Gregory's Powder, five grains for an infant, and from eight to twenty grains for a child past infancy, according to age.

Senna.—Senna tea is much in domestic use; but, as it is usually made, it is apt to gripe painfully. If it is prepared by allowing the leaves to steep in cold (or merely warm) water for a sufficient time with the addition of some powdered ginger, this effect is much modified. The Confection and the Syrup of Senna are perhaps better taken by children. They are less nasty and warmer than senna-tea. The Sweet Solution of Senna* I find in practice to be well suited to children of all ages; it is not disagreeable,

* Or *Liquor Sennæ Dulcis*, manufactured by H. A. Thompson, 22, Worship Street, E.C.

and is mild but efficient. Doses : of the tea, one or two table-spoonfuls or more, according to age ; of the confection, one drachm or more ; of the syrup, one teaspoonful or more, according to age ; of the sweet solution, from half to one teaspoonful for an infant, and from one to three teaspoonfuls for a child past infancy, according to age.

Jalap—is a convenient purgative for children (not infants), as its action in small doses is brisk but not excessive, and it has but little taste. It is apt to colour the urine red, a fact which I have known sometimes to alarm mothers until explained. It is best given in combination—with calomel, if the liver is sluggish—with a little scammony,* for worms —or in the case of older children, with cream of tartar and ginger (as in the "Compound Jalap Powder"). Dose : of the Jalap in powder, three to five grains—for children above one year old ; of the "Compound Jalap Powder," five to ten grains.

Grey Powder,—or mercury with chalk, is a most valuable medicine in many disorders and diseases of children. The mere fact that this and other mercurials have sometimes been unskilfully used with very unfortunate results, is equally true of most medicines ; and instead of leading to a prejudiced and sweeping condemnation of all remedies of this class, it should only serve as an admonition to using them with care and judgment. It must not be given in repeated doses, under any circumstances, except by a medical man. As has been already stated with regard to mercurials generally, this preparation is well borne by children, even (when necessary) in rather large doses. It is an alterative and gentle laxative, stimulating the functions of the liver. In further portions of this book it may be referred to in connection with many of the diseases of infancy and childhood.

* The "Scammony Mixture," made by pounding four grains of scammony with four table-spoonfuls of new milk, is the best form of it for use. Dose : from one table-spoonful to three, according to age.

It cannot easily be dissolved, but is best given in a little sugar or preserve. Dose : one grain to three, according to age and to effect desired.

Calomel.—Very many of the patent medicines sold under the names of "Cooling Powders," "Fever Powders," and "Teething Powders," depend upon this drug for any efficiency they may have. And there is no particular reason why they should not do so, provided many of such powders are not given in succession to one child, and that none are given to infants or children in a state of prostration or debility. Calomel is a much stronger medicine than Grey Powder, and therefore requires still greater care in its use. It is a useful purgative in teething, or in feverish or inflammatory complaints. Dose : a quarter of a grain to half a grain or one grain, according to age.

Other Methods of acting upon the Bowels.—*Purgative Embrocation.*—In some cases where purgatives cannot be taken internally, or where their action is resisted, this method is very useful. The liniment should be well rubbed in over the surface of the stomach. See Appendix of Prescriptions. No. 2.

Purgative Biscuits—see Prescriptions. No. 1.

The Injection or Enema.—This safe, speedy and efficient method of relieving the bowels is common in France, but too much neglected in this country. It is very useful in obstinate constipation, in assisting a quick action of medicine, or in removing thread worms. Soothing injections are often beneficial to the irritable surface of the bowel in some forms of diarrhœa (see Prescriptions, No. 3). Children seldom or ever require any enema more powerful than warm water and soapsuds, or warm barley water.

Care is required in the administration of an injection to a child; but with it there is no danger whatever of doing mischief. An elastic ball syringe, capable of holding the whole

amount of fluid to be injected at one time, with a fine gum elastic pipe is the instrument that should be used. The child should be laid in a convenient and easily manageable position on its mother's lap, and the pipe, previously warmed and lubricated with oil or fresh lard, should be gently introduced into the bowel, with hardly any pressure, but allowing it almost to find its own way on, for about an inch and a half (or less in an infant), in a direction inclining very slightly to the left side of the child's body. Then with one full and gradual compression of the syringe, the whole amount of the contained fluid should be injected into the bowel, and the instrument then be slowly and easily withdrawn. The amount of fluid to be injected, for an infant, is about one ounce; for a child from one to five years, three ounces; and for one from five to ten, from four to six ounces.

The too frequent use of injections is not good; the muscularity and *tone* of the bowel is thereby relaxed, and a feeble and sluggish action induced.

The Stick of Soap.—Cut a piece of yellow soap two or three inches long, and of the thickness of one's little finger, to somewhat of a point at one end. If this is introduced into the bowel and held there for a few moments, it will produce a good evacuation. This plan may be had recourse to as often as is requisite, without any harm.

Alteratives.—The action of medicines of this class is to increase the secretions and to favour exhalation from the skin, to soften the tissues, to cause the absorption of morbid growths, to reduce abnormal thickening in membranes or tissues, and (to use a rather vague phrase) to purify the blood. No useful instructions can be given to unprofessional readers, on a class of medicines covering such a wide and complicated field. A definition of the term is merely inserted here to save explanation hereafter.

Diaphoretics—promote the action of the skin, or, in

other words, create perspiration. One of the aphorisms of Bouchut runs thus: — "Abundant perspiration is not observed in young children, it is entirely replaced by moisture." Therefore, medicines of this class are not of much use for infants, except in combination with other remedies; but they often become valuable for children of more advanced age. They are useful in restoring the action of the skin when it has been checked by cold; in fevers, by increasing the secretion from the surface, they relieve the circulation and the turgidity of internal parts; they have the same useful action in bronchitis and some other inflammatory diseases; they are very beneficial in fevers attended by a rash or eruption, and in some cases of skin disease.

Very frequently a warm bath, a hot foot bath, or a vapour bath, with or without warm drinks, will answer as effectually as any diaphoretic medicine; and, if it will, it is the better (because the simpler) remedy of the two. But, at any rate, the means just alluded to will always powerfully aid the action of a diaphoretic. Some of the best to be used in the treatment of children are—

Sweet Spirit of Nitre. Acetate of Ammonia.
Nitre. Antimonial wine.
Camphor.

Sweet Spirit of Nitre, or more correctly, Spirit of Nitrous Æther, is an admirable, safe, and efficient promoter of warmth and perspiration. It also increases the amount of water secreted by the kidneys. It may be given with a teaspoonful or two of camphor water, and sweetened with syrup if preferred. Dose: for a child under one year, ten to fifteen minims; for a child above one year, ten to twenty minims, according to age and effect required.

Nitre (or saltpetre, or nitrate of potash)—is another good diaphoretic, acting also on the kidneys and increasing the amount of urine secreted, but not so good a medicine for

domestic use as the last named. Dose—for an infant under one year, one or two grains; for a child, between one and ten years old, from two to six grains either in water or mixed with white sugar, according to age.

Acetate of Ammonia—is only used in the form of a preparation called "the Solution of Acetate of Ammonia," or "Spirit of Mindererus." Dose: fifteen to forty minims, according to age.

Antimonial Wine—is a valuable member of this class of remedies, and, as has been before stated, is well borne by children. But we must not forget that antimony is a powerful poison, and that ignorantly or unskilfully used, it is likely to do much more harm than good. The reckless way in which it is often used by mothers among the lower classes is a source of frequent astonishment and terror to medical men. This drug is merely mentioned here that mothers may be cautioned not to administer it except under precise medical direction.

Camphor—is most useful in the form of camphor water, given with some other diaphoretic, such as sweet nitre: or as a very small drop of spirit of camphor on a little piece of loaf sugar.

Emetics—or medicines that cause vomiting, are very beneficial in many diseases of children, and their action is attended by much less distress than with adults; possibly from the fact that the stomachs of the very young are longer and more like the bowel in shape, than those of the full-grown. This facility and painlessness of ejecting the contents of the stomach is a happy thing for infants, who thus constantly relieve an overloaded or irritated condition of this organ.

Some knowledge with regard to the use of emetics is the more necessary to readers of this work, because in many cases, in order to do any good, they must be given at the

very outset of an attack, and sometimes without the unavoidable delay of awaiting the arrival of the doctor.

In no case, perhaps, is the good effect of a timely and thorough emetic better seen than in the outset of an attack of croup. Having been made to vomit pretty sharply, the child who previously was sitting up labouring for breath, with loud crowing inspirations, dry ringing cough, and anxious features, now is seen tranquil, perhaps trying to lie down, bedewed with a salutary perspiration, and with the breathing materially relieved. At the very beginning, too, of inflammation of the lungs an emetic is very useful; but it will be quite out of the power of every unprofessional person to recognise this disease with any certainty. In any stage of bronchitis (a most common disease of childhood) an emetic gives great relief, if the cough is hard and "tight" and the breathing wheezy; the ejection of obstructing phlegm is thereby facilitated, and the stomach is relieved of the presence of mucus and phlegm that the child has swallowed.

A speedy emetic will often serve to dislodge any object that may have got into the child's throat,—"gone the wrong way" as the phrase is,—whether it be a shilling, a thimble, a piece of food, or any other foreign body threatening suffocation. But to be of use it must be very speedy, and no remedy is so ready, or more effectual, than the finger passed well down the back of the throat. (N.B.—Don't slap the child on the back.) In many of those alarming cases where a child has swallowed poison, an emetic instantly administered affords the best and sometimes the only chance of saving life.

The best emetics for children are:—

Mustard and Water.	Antimonial Wine.
Ipecacuanha Wine.	Sulphate of Zinc.

Or, the Finger (as above).

Mustard is a very good emetic, and is nearly always at hand. Its action produces no depressing effects. Mix one drachm (or a good teaspoonful) with half a tumblerful of warm water and get the child to drink it all. The size of the dose makes it applicable only to children above four years of age.

The dose of Ipecacuanha Wine for *a child*, is half a teaspoonful to one teaspoonful and a half, according to age.

It is sometimes found that practically the ipecacuanha *wine* will not cause vomiting: probably the wine in it prevents this effect. In this case the ipecacuanha *powder* must be used. Direct a druggist to mix from half a grain to one grain of it, according to the age of the child, with a few grains of powdered loaf sugar. This dose may be safely given to an infant of from eight to eighteen months old every fifteen minutes, until vomiting is produced.

As before enjoined, caution should always be employed in dealing with *Antimony*, but there is much less risk and possibility of doing harm in giving one full emetic dose, than in an uninstructed person giving repeated, smaller doses, without knowing the manner of action of the drug. The Ipecacuanha Wine is to be preferred for nursery use; it is safe and effectual but not too prostrating, and indeed antimonial emetics should seldom or never be given to children under eight years of age. But if circumstances should prevent the employment of anything else for children above that age, the dose must be carefully measured. An emetic dose of antimony wine for children above eight years of age, is from twenty minims to one drachm, according to age.

Sulphate of Zinc—is only had recourse to when it is necessary at once to empty the stomach without producing any particular effect upon the system—as for instance, when a poison has been taken, or when a child has swallowed some small and hurtful object that it has picked up. Dose, —to produce vomiting, for a child of one or two years, two

grains; for a child of from four to ten, three to six grains in warm water every ten minutes until the child vomits.

Expectorants—are given to act upon the mucous membrane of the air-passages, to increase the secretion of mucus (or phlegm), and also, by lessening its viscidity, to assist in its extrication;—or in plain words, to enable the child more easily to cough it up.

Amongst those which are at once the safest and best for children, are—

Ipecacuanha Wine.
Syrup, or Oxymel, or Tincture of Squills,
And Syrup of Tolu.

There is also another much used,—Paregoric Elixir, or Compound Tincture of Camphor; but since a quarter of a grain of *Opium* is contained in every drachm of the tincture, it is entirely unfitted for use except by a medical man, unless under precise directions. But it is, apart from this, a very useful medicine.

Remedies of this class are used chiefly in "colds on the chest" with hoarseness, in coughs, and in bronchitis; also in the bronchial catarrh, or cold, that so commonly occurs during teething; but they are of very little use in whooping cough, except in its earliest stage. Both ipecacuanha and squill if given in at all a large dose have a nauseating effect, but if the medicine is continued, this is not usually felt after the first two or three doses. The action of expectorants is frequently improved by a diaphoretic (such as one of those mentioned on page 166) being given at the same time. Doses: of Ipecacuanha Wine, five to ten minims (according to age) in water, every three or four or eight hours (according to symptoms); of Tincture of Squill, about the same; of Syrup of Squill or of the Oxymel of Squill, twenty minims to one drachm; of the Syrup of Tolu, fifteen minims to one drachm, according to age.

Narcotics and Anodynes.—A narcotic is a drug that produces sleep, an anodyne one that allays pain. This class of medicines, invaluable in skilled hands, is only mentioned here that mothers and those who have the care of children may be specially warned never to use them, except under precise medical directions. The basis of the large majority of narcotic preparations is opium, in one form or another, and we have already adverted to the dangerous readiness with which children fall under its influence. The amount which is sufficient to produce alarming symptoms, especially in the case of young infants, is often incredibly small. I have seen an infant six weeks old in a condition in which life was with difficulty preserved, in consequence of having taken two doses of medicine, with an interval of four hours between each dose, containing only $\frac{3}{8}$ths (or not quite a half) of a drop of laudanum: so that in the two doses together the infant had taken what amounted to no more than about $\frac{1}{10}$th of a grain of opium. Probably the quack medicines, Godfrey's Cordial, Dalby's Carminative,* and Mrs. Winslow's Soothing Syrup, are responsible (after alcoholic drinks) for more mischief and death than any other compounds of modern times.† Syrup of Poppies is also largely used; but it is, if possible, more to be deprecated than the foregoing, since it is a preparation of exceedingly unequal strength.

An untrustworthy and worthless nurse, if frequently disturbed at night by a restless child, will sometimes have secret recourse to an opiate. But if such a practice is continued for any time, the child's appearance gives strong evidence of it. The skin becomes dull and sallow, the eyes heavy and lustreless with swollen eyelids, all energy

* See Appendix of the Composition of some Patent Medicines.

† See page 136.

and vivacity are gone, the body is emaciated, the motions are very light in colour and confined, and the appetite is lost. When these symptoms arise rather suddenly, without any others and without any assignable cause, in a previously restless and troublesome child, let the nurse be closely watched.

Stimulants—or medicines which, by acting upon the nervous system, produce a temporary increase of the action of the heart, and a passing feeling of warmth and energy, are not frequently required in treating the diseases of childhood, and still less in those of infancy. The administration of stimulants to children, next after narcotics, requires the greatest care and judgment. They are apt, if unnecessarily given, to cause unhealthy excitement and undue fulness of the circulatory system, followed by a corresponding depression. This condition cannot but favour the production of febrile symptoms or local congestions, if any disposition in those directions exists.

Stimulants are chiefly used in the prostration of strength produced by the progress of severe fevers, such as typhus, malignant scarlet fever, or typhoid; to sustain the vital powers in diphtheria or acute diarrhœa; in the debility accompanying wasting diseases of a strumous origin; in cases of ulcerated sore throat, and in some disorders of the digestion attended with flatulence. The best stimulants for children are sal volatile (Aromatic Spirit of Ammonia), wine and brandy. The cases in which they should be used, and the proper doses, will be indicated on future pages.

Tonics—as their name implies, increase the *tone* or power of the nervous system, by which in turn all other portions of our frame is strengthened, and improve the blood in quality. In other words, they are strength-producers; and are most valuable medicines in the treatment of many

serious diseases of childhood. There are different kinds of Tonics just as there are different kinds of Stimulants and Purgatives, but perhaps the diversity in action is even more marked among Tonics. There are those that are tonic to the heart and the circulation generally, improving the blood; such as the various preparations of iron, and perhaps cod-liver oil, which is however more a food than a medicine. Other tonics act chiefly upon the nervous system, such as bark and quinine,—and others again upon the stomach and digestion, as gentian, calumba, and diluted mineral acids; a section of the tonic class not much in use amongst children.

It is impossible in this place to give special instructions with regard to the cases in which tonics are necessary, the preparation that should be used, or the dose in which it should be administered; but it must suffice for the present if I speak of the action and uses of the two tonics that are most valuable in diseases of children; I refer to Iron and Quinine.

Iron, in its various preparations, owes its great value as a tonic to its power of increasing the quantity and improving the quality of the blood. The blood owes its life and strength (so to speak) to the innumerable microscopic red globules or discs that it contains, and to which its colour is due. Blood deficient in these is the blood of a poor, weak, diseased body; but iron has the marvellous power of re-making these red globules in incalculable numbers in a comparatively short space of time, besides that of improving the fluid generally and the vessels through which it runs. Therefore, when we see a child pallid and emaciated in appearance, its heart acting feebly, its appetite capricious or altogether lost, feeble and nerveless, we know that one thing which that child wants is iron. The pallor of poor or deficient blood is a creamy whiteness,

with almost a light greenish hue diffused through it; and the lips are pale and bloodless. There are all sorts and degrees of this condition, and we are not to wait to give iron till our child exhibits the very marked symptoms here described. As its use is persevered in, gradually a little colour steals over the skin, flesh begins to form, the eye to brighten, the appetite to return, and energy and interest to be manifested.

But in one or two conditions of constitution, which are unfortunately only too prevalent, iron is as valuable a *preventive* as it is in other cases a cure. I refer to those diseased states of the system which are called Struma or Scrofula and Tuberculosis, which yet remain more particularly to be described in future pages.

M. Coster, with more scientific ardour than humanity, shut up a number of dogs, rabbits, and other animals in a cold, dark and ill-ventilated cellar, in such a manner that they could not move. Some of these poor creatures he fed on ordinary food, others on bread containing a good deal of carbonate of iron. Nearly all those who were fed on the ordinary food became affected with tubercle, — or in popular language became scrofulous and consumptive,— while of those fed on bread with iron not one was thus diseased.

In practice, also, we find that iron is most valuable in all those cases in which the constitution may be suspected of harbouring a tendency to these constitutional taints; by its aid the manifestations of disease may be warded off for years and sometimes even altogether.

The tendency of most preparations of iron to confine the bowels, must be borne in mind and guarded against. Preparations of iron also impart a black or slaty colour to the motions. The best preparations of iron for children are these that will now be mentioned.

Syrup of Superphosphate of Iron.—This is the basis of Parrish's Chemical Food, which contains also the phosphates of lime, soda, and potash. It is liked by most children, and is mild, safe, and efficient. Dose:—For those above a year old—from twenty minims to one drachm (or a teaspoonful), according to age—given two or three times a day in a little water, or, which is much nicer, undiluted out of a spoon.

Saccharated Carbonate of Iron.—Of a greyish brown colour, and of a sweet and not unpleasant taste: a safe, effectual and unirritating preparation for children. Easily taken in preserve or treacle. Dose:—for a child above one year and up to seven or eight years, two to five grains; from eight to twelve years, five to ten grains; in each case according to age.

Steel Wine (Tonic and Stimulant).—Almost tasteless, and very useful for children as a mild preparation. Dose:—from one to seven or eight years, fifteen minims to half a drachm; from eight to fifteen years, half a drachm to one drachm; in each case according to age.

Citrate of Iron Wine.—Action and dose much the same as those of the above. A very good form for administration.

In Scrofulous cases the *Syrup of Iodide of Iron* is very useful, but is not so well borne by the stomach as the syrup before mentioned, and has an unpleasant taste. Dose:—For children from one to five years old, five to ten minims; for children from five to ten years old, ten to twenty minims, according to age.

Quinine—as most people now know, is the active principle of the more old-fashioned and cumbersome remedy "Bark." It has a remarkable tonic action upon the nervous system, bracing up the whole frame like a cold plunge on a summer morning. It has, moreover, the unexplained but seldom-failing faculty of putting a stop to all diseases that show a

tendency to recur at regular intervals, like ague. It has also an important influence on the circulation and on the blood. It improves the appetite, but is apt to constipate the bowels, and if taken in too large doses or for too long a time causes a feeling of tightness and of buzzing in the head, and headache.

It is extremely useful in a strumous form of inflammation of the eyes (strumous ophthalmia), in the erysipelas of infants, in a disease that consists in a foul, sloughy, ulcerated state of the mouth (cancrum oris), in the later stages of whooping cough, and in many scrofulous affections. It is also given during *convalescence* from very many acute diseases, and especially after fevers; while frequently, if they are very severe and attended with great prostration of strength, it is given during their *progress*.

It is best given to children as a powder mixed up with a little pounded loaf sugar, or concealed in preserve. Dose: a quarter of a grain to half a grain or more, two or three times a day, according to age and to the severity of the disease.

Anthelmintics are medicines given to kill worms; and sufficient information will be given upon them in the chapter devoted to the consideration of Worms.

But there are other remedial agents that should be used in their proper places in the treatment of the diseases of infancy, as well as medicines; sometimes these are to be preferred to medicines, and sometimes to be used as assistants to their action. The important remedial agents that we possess in Diet, Fresh Air, Exercise and Light have already been adverted to; of the remainder, perhaps those of which I may most usefully speak, are Change of Air or Climate, Baths, Poultices, Blisters and Leeches.

Change of Air or Climate.—So much has already been said on the health-giving properties of pure air, that the beneficial effects of *changes* of air upon certain diseases

and conditions of the system, only remain to be noticed. In the first place, it is essential that every child in disease should be breathing tolerably pure air. If it is not, no improvement can rationally be expected until it has a *change* to a healthier atmosphere. But there are thousands of children who are living in the purest possible atmosphere, and are nevertheless suffering from low health or absolute disease, that a *change of air* would do much to cure. Where the necessity of change of air is indicated, let the child who lives inland go to the sea—but *not* into a dirty, stifling, ill-drained lodging-house,—and let the seaside child go to the hills up the country. Many a child once poor and debilitated, who grew worse rather than better upon drugs, dates the commencement of his improvement from the day he arrived on the fresh and breezy seashore, or exchanged the stagnant and murky atmosphere of a town for the bright and open country.

In long-standing disorders of infants we often see decided benefit gained by merely changing them from one room to another. In the distressing disease Asthma, from which children are by no means exempt, a change of air from one part of the town or country to another, or even a shorter migration than this, is often sufficient to put an end to the attacks.

"Some persons subject to the disorder are unable to breathe in the thick smoky atmosphere of London; require a high and clear situation, and respire easiest in 'the difficult air of the keen mountain top.' Others can nowhere breathe so comfortably as in low moist places: in some of the streets by the water side in the city, for instance. The friend to whom I lately alluded lived at Newmarket, a most exposed and bleak spot. But if he left it, and attempted to sleep in a strange place, he never was certain that he should not be assailed in the night by his well-known enemy. Another college acquaintance of mine, much tormented by asthma, is equally sensible to these inscrutable influences. Two inns in Cambridge are named respectively the Red Lion and the Eagle. He can sleep in one of them, and not in the other. Nay, he is thus variously affected within much narrower limits.

He assures me, that when in Paris, he never escapes a fit of asthma when he attempts to sleep in the back part of Meurice's Hotel, and never suffers when he sleeps in a front room. Dover Street suits him; Clarges Street does not. He cannot rest in Manchester Square."—*(Sir Thomas Watson.)* I have a patient who never suffers from asthma except when he goes to a certain village in Oxfordshire, but when there he invariably has an attack.

Children suffering, or *likely to suffer*, from any form of struma or tuberculosis* are more benefited by a change of air to the seaside, than by any other means.† Children who are well advanced in their recovery from acute diseases, by a change from town to country, or from one part of the country to another more bracing, will usually soon become perfectly restored, and very often will seem to have gained a hardier physique than the one that the disease passed over. A more warm and relaxing air (like that of South Devon, West Cornwall, or the Isle of Wight) is often to be sought for delicate children with feeble circulations and susceptible chests. The parents of children who, between three and seven years of age, show a disposition to water on the brain, to disease of the glands of the bowels (described on a future page under the title of *Decline*), to enlargement of the glands in other parts of the body, or to croup, bronchitis, and inflammatory disorders of the stomach and bowels, will do well (acting under medical advice) if their position and time will permit them to take their ailing little ones to the warm and sunny climate of Italy or Southern France for the winter months. By this means, three or four months of uninterrupted health is exchanged for the same period of almost uninterrupted sickness, and doubtless many lives have been saved by this wise and timely precaution.

* For explanation of this word, which is expressed by no one English word, see the chapter on Tubercular Disease.

† In England, the sea-coast of the Isle of Thanet is pre-eminently the best for this condition of the system.—H. S.

For strumous children of low vitality, Nice is admirably suited: while the softer, relaxing climate of Rome is best for those who wish to avoid bronchitis or inflammation of the lungs or bowels, or who are nervous and excitable.

But for those whom many circumstances prevent from travelling thus far, the means of health, if sought for, are nearly always to be found within their own country.

Baths.—Besides having high sanitary value, baths are also in some cases directly beneficial and curative to disease. Having fully discussed the subject of bathing in health (pp. 91 to 98), it only remains now for me to say a few words on the use of baths in illness. Those that are chiefly used are as follows:—

The Warm Bath.	Temperature	95	degrees	to 100	degrees	Fahr.
The Hot Bath.	,,	100	,,	to 110	,,	,,
The Vapour Bath.	,,	100	,,	to 115	,,	,,

The Warm Bath is a most valuable remedy, and within the reach and management of every one. When one is given, it should (if possible) be in a warm room, and if in winter, before a good fire. The child ought not to be allowed to sit shivering in two or three inches depth of warm water, half of him hot and half cold like French toast, as I have so often seen to be permitted—it would probably be better to have no bath at all than this,—but he should be completely covered by the water, as he sits, up to the neck, and should so remain for from five to fifteen minutes according to his age. As the water of course quickly cools, it is best, if he is going to stay in the full time, to bale out some of the cooling water and to add some fresh that is hotter, and so maintain the even temperature of the bath throughout. When a child is very frightened of the water, the terrors of the bath may be altogether avoided by covering it over with a blanket held rather loosely at the sides by the mother and nurse. Place the

child on this, and gently and imperceptibly lower him into the water. Thus, much unnecessary screaming and trouble for all parties is saved. When the child is taken out, he should be rapidly but not thoroughly dried in front of the fire, and then at once be entirely enveloped in the folds of a hot blanket, exclusive of the head; and he may, if necessary, be thus consigned to bed. Whatever moisture is left on the skin is by this means converted into vapour, which, being confined by the enwrapping blanket, forms almost a second bath, whereby the good effect of the first is prolonged and enhanced. It is much better to postpone the dressing of the child, or the putting on of the nightgown and so on, until the excitement of the skin and the perspiration thus caused have subsided, which probably will seldom be before an hour has elapsed. It may then be done with precautions as to the avoidance of cold.

Thus administered a warm bath will be a soother of pain, and productive of sleep; it will allay irritation and diminish fever, and will usually induce a copious perspiration. For once that a warm bath is used medically in the nursery for other diseases of infancy or childhood, it is used twenty times for convulsions. In this alarming malady it is a great and standing remedy, and used in the manner directed, with cold simultaneously applied to the head, it is far more efficacious than any other.

But it is also extremely useful in other diseases; in false croup, or "child crowing" for instance; in measles, scarlet fever, or small pox, when the rash comes out slowly or imperfectly; in some cases of continued and intermittent fevers; in dropsy following scarlet fever, and in some forms of skin disease; whilst in the long-continued diarrhœa, common during teething, the use of the warm bath is often followed by the happiest results.

It is also useful as a preventive measure, when exposure

to cold or damp threatens to take effect in illness, whether used as described above, or partially, as a foot bath.

The Foot Bath is probably the commonest and safest nursery remedy known. And it is by no means to be despised. If a mother fears that her child has caught cold, she very properly "puts his feet into warm water" before he goes to bed. And many an oncoming febrile attack, which has shown its precursory symptoms in chilliness and shivering, has been thus cut short. But the mother should not put her child's *feet* only into hot water, but his *legs* also nearly as far up as his knees; and the rest of his body should be warmly covered in a blanket during the process. The good that a foot bath does, is mainly effected by its drawing the blood from the head and chest to the legs and feet. The temperature of the water is best expressed by saying that it should be kept the whole time as hot as can be comfortably borne: the skins of some are less sensitive to heat than those of others. If a very decided impression is required to be produced, mustard may be added to the water in the proportion of one tablespoonful of mustard to a gallon of water. Ten or fifteen minutes is the time requisite to get the good effects of a foot bath; and when the feet and legs are taken out of the water, they should be well dried with a warm towel, long thick woollen stockings pulled on, and the child put into a *warm* bed. Had I not often seen even this very simple remedy absurdly mismanaged, I should not have thought it needful to enter into details on this matter.

A combination of the hot foot bath with ice or cold water to the head is of signal service in the convulsions of infancy and childhood, and inflammation of the brain.

The Hot Bath.—No distinction is to be drawn between this and the warm bath except in the temperature of the water (see page 179). It is given in the same manner and

with the same precautions, and it is to be preferred to the warm bath only where a more rapid effect is required to be produced, where it is necessary to induce more complete subsequent reaction and depression of power, or where the milder bath fails to obtain the desired effect.

The Vapour Bath in its effects very much resembles the hot or warm bath, but it is more lowering, productive of more profuse perspiration, and is less soothing to the nervous system. It is principally to be preferred to the other baths in dropsy following scarlet fever, when it seems capable of producing a more copious sweating, and consequently a greater benefit, than any other measure. It is also more useful than water baths in some cases of rheumatism occurring in children above six years of age, and in some scaly skin diseases. Its depressing properties should warn parents not to make use of it except with medical sanction. There is only one very rare disease* in which it is ever right to administer a vapour bath to an infant, and it requires care and tact even with a much older child.

There are many modes of administering a vapour bath, but perhaps the simplest and readiest is as follows:—

Let the child sit naked on a cane-bottomed chair, which may be placed on the hearthrug near to the fire. Let a thick and voluminous blanket or rug be so thrown around him as completely to include both his body and the chair, and so as to descend to, and lie upon, the ground. This covering should be fastened above round his neck, and should nowhere leave any aperture through which steam can escape. To the spout of a kettle boiling upon the fire let one end of a piece of vulcanized india rubber tubing be fitted; this should be long enough to allow the other end to be passed under or through the blanket, where it may

* Called by doctors "Sclerema"—the dropsy of the new-born, caused by some obstruction to the circulation.

be loosely attached with a bit of string to the leg of the chair. If the covering around the child is thick enough and properly arranged, he will thus enjoy a very perfect vapour bath. If this plan should, by any chance, not answer well (and bad management will spoil anything), let a little lamp be placed on the ground underneath the chair, over which some water placed in an open vessel is allowed to boil. The tube and kettle can then be dispensed with. There are many sets of apparatus patented and sold for this purpose, but no such apparatus is necessary. It is best not to allow a nervous child to see the lamp lit under his chair, or he imagines something dreadful is going to happen and becomes unmanageable. The duration of the bath should be determined by the medical attendant in accordance with the age, strength, and necessities of the child, but the average time is from ten to twenty minutes, more or less. Afterwards the child should be wiped dry with a soft warm towel, and without exposure to cold; he should then at once have a warmed flannel nightgown put on, and be laid in a warm bed. The action of the bath is much aided by drinking rather freely of hot milk, or hot milk and water.

Medical men are accustomed constantly to hear it objected to warm baths that they are weakening. There is more error than truth, by far, in this assertion. They are only weakening when wrongly used; by the wrong people,—those for instance, who are already weak and debilitated; or when their use is too long continued, either by making each bath of too long duration, or by taking too many closely following one another. When properly used, their action is distinctly stimulant and strengthening.

The Shallow Bath is a comparatively new remedial measure. It is used, very beneficially in most cases, to reduce fever in children. In acute fevers where the temperature rises very high (above 102 degrees or even to 106

degrees), producing a harsh, hot, and burning skin, this form of bath gives immediate relief; more so indeed than the Cold Sponging frequently used in the same cases. The following is Dr. T. R. Armstrong's description of it. It may be of a length suited to the size of the little patient, but "with a depth of water varying from five to twelve inches.* The temperature of the water varies from 60 degrees to 80 degrees Fahrenheit. In this the patient is placed in a sitting position, with the legs consequently covered by the water. They are constantly rubbed by an assistant while water from the bath is poured gently over the head and body from a pitcher. This operation is occasionally interrupted, and the body is well rubbed by an assistant who wets his" (or her) "hands in the water of the bath. The patient is kept in the water a variable time, until he is sufficiently cooled, which must be decided by the physicians according to his appearance during the bath."

An immediate effect is produced upon the three most urgent symptoms of fever, the temperature, the frequency of the circulation or pulse, and of the breathing; they are all diminished.

This bath is not recommended if inflammation of any part or organ exists, or if there is great excitement or irritability.

Cold Sponging to the surface of the body, in fevers that run high, is also a great relief to the parched skin in moderating the consuming heat. It is probably not so completely efficacious as the "shallow bath" just described, but on the other hand it is more generally safe, and is much more readily managed. With ordinary care, the child may be both sponged all over with the cold water and afterwards dried, without being removed from the bed; a piece of india-rubber cloth laid over the sheet and pillow during the

* Dr. Armstrong is describing the bath for an adult; the depth of water for a young child need not be so great.

process will effectually protect them. It may be repeated fearlessly every half hour or hour as long as it gives relief, or until the temperature is reduced or perspiration occurs.

Ice to the Head, in those diseases of the brain in children which are of an inflammatory or congestive character, is a remedy of the greatest use. The cases that demand its use will be indicated on future pages. The method of application is this:—Let a pig's bladder be soaked and cleaned; let the neck of it be cut off, and a quantity of pounded ice (not so much as to be heavy) be put into it. The mouth of the bladder should then be folded together around a cork, and tied tightly in that position with string. The pounded ice is to be renewed as often as it melts and loses its coldness. Some care should be taken in the adjustment of the bladder on the head, as it makes a child very uncomfortable if it slips under his neck or back, or against his face, or into his bed. The best way is to tie it to the head of the bed or cot, with a piece of string just long enough to allow it to lie lightly and evenly upon the head without undue pressure. Under its use consciousness frequently takes the place of delirium, and the most alarming symptoms disappear.

In case it should be difficult, or impossible, at any time to procure ice, I have given directions in the Appendix of Prescriptions (No. 25) for the making of a Freezing Mixture that will answer nearly as well.

Blisters.—My own opinion is that blisters are altogether inadmissible as remedial agents for infants, and that they are very seldom necessary in the diseases of childhood;* and I express it the more readily since I am supported by the general testimony of the medical profession. A blister should certainly never be applied to a child without express medical direction; and even then the medical attendant

* I do not here speak thus positively of that border land of childhood which lies between the seventh and twelfth years.

usually prescribes many modifications of the ordinary process. Thus, if a blister *must* be used for a child, the ordinary blistering salve ought to be diluted with from two to three times as much soap cerate; or perhaps a simpler precaution may be found in the interposition between the blister and the skin, of a piece of tissue paper or fine muslin. The blister should seldom be allowed to remain on for more than from two to four hours. The thickness of the skin in different parts of the body varies considerably, and the time that a blister is kept on any part should vary in accordance with it. Thus a blister may remain on the scalp "for eight hours without any risk of mischief ensuing," (Dr. C. West), —on the back perhaps for four hours, but on the chest for certainly not more than two.

The reasons on which these objections to blisters for young children are founded, and which render these precautions necessary, are these:—(*a*) The skin of the very young is extremely sensitive and delicate, and the irritation of a blister is usually sufficient to cause great excitement of the system, and inflammation in the part to which it is applied; inflammation, too, which is extremely likely to run on into active ulceration and even "sloughing" or mortification. (*b*) The ingredient in blistering salve that gives it its activity is Cantharides, or Spanish Flies (pounded up small). One of the effects of administering any preparation compounded of these insects, either in small doses internally, or largely externally, is violently to stimulate the kidneys and bladder; and often when blisters have been unguardedly applied to children, this effect has been exaggerated into serious and most painful mischief in those organs.

There is probably no good purpose subserved by blisters, for children under eight, that a mustard poultice would not bring about as well or better, and certainly more safely.

The dressing of the blister should be thus performed. Let a piece of lint or linen rag the same shape as the blistered surface, but a little larger, be thickly spread with either spermaceti ointment or *fresh* lard. Then having placed a cloth or sponge to catch the fluid that comes away, carefully snip the blister with a pair of scissors in the most dependant and bulging part of it. The scissors should be held almost horizontally to the skin, and with the sharp pointed blade of them nearest to the patient's body. When the fluid is evacuated, the dressing should be put on and pressed gently down all over the surface it is meant to cover. For the next sixteen or twenty hours the dressing should be changed every four hours, but after that time it will suffice if it is done morning and evening, until quite healed.

Some physicians direct blisters produced upon children to be left unopened (and consequently undressed), with very good results, and with the avoidance of subsequent sores.

It is occasionally desirable to keep a blistered surface from healing, and to maintain the discharge (and consequent irritation) that proceeds from it. In order to effect this it is only necessary to dress it daily during the time required to keep the blister open, with some irritating ointment, instead of with that recommended above. A safe and efficient one is the ordinary Savin Ointment. The use of any remedy of this kind, except under medical direction, is however *much* to be deprecated.

Poultices.—Simple and within the reach and use of all as these applications are, they are frequently more reliable and powerful for good than the most *recherché* drugs or the most ingenious inventions. Those that are mostly used in diseases of infants and children are three,—the mustard, the linseed, and the bread poultice.

Before applying any poultice it is a good plan to smear the skin with some oily or fatty matter, such as olive oil, lard, or glycerine, in order to prevent any portions of it from sticking, when it is taken off.

The Mustard Poultice—Is not often used for infants or

young children in the unmixed form, but the doctor usually orders a mustard-and-linseed poultice, or a poultice of mustard mixed with a good deal of wheat flour.* Pure undiluted mustard to a very delicate skin would be almost as sharp a remedy as a blister; and indeed the action of the two is similar in kind but differing in degree. Popularly and very broadly stated, they are supposed to act by setting up a turgid or congested state of the skin wherever applied, which is usually in the neighbourhood of some more important and deeper part that is suffering from undue fulness of blood; they thereby draw away a portion of it to the vessels of the surface, and thus give relief.†

Bearing this idea in mind, it becomes evident that for a mustard poultice to do good, it should in most cases be a large one. For if it is but small, the derivation of blood from the interior to the surface is carried on over so limited a space, that not nearly so much blood is drawn away from the affected part as *might be*, if the area of skin acted on was extensive. It is but seldom though, if ever, that a pure mustard poultice should be applied to a child, and certainly never to an infant. A combination of the linseed and the mustard poultice is much the most useful and safely efficacious in all the diseases of childhood that require such a remedy. Directions for making a mustard poultice will be found in the Appendix of Prescriptions (No 4); but the preparation just mentioned is generally the most useful, especially for infants and *young* children.

Mustard poultices of this modified kind are of immense

* The medical man in attendance should be asked to specify the exact proportions of mustard and linseed or flour that ought to be used in each case, if he does not do so without asking, which he probably will.

† There are many other theories on this subject, but the fact is that *no* theory satisfactorily accounts for the undoubted good done by remedial applications of this class.

value in almost all inflammatory and congestive diseases of the chest, of the kidneys, and of the various organs in the abdomen or belly; also in sore throats, in croup, and in yet others where they will be spoken of in their place.

In using mustard on a tender and sensitive skin, a piece of fine muslin should be placed between the poultice and the skin; and the action of the application should be watched and judged of, not so much by the often loudly expressed objections of the little patient, as by the visible progress it makes in reddening the skin. It should be taken off before the redness is allowed to become excessive. Ulceration and even worse consequences have occasionally ensued from neglect of this precaution. The time for a mustard poultice to remain on, is about fifteen or twenty minutes, supposing always that the strength of the poultice is adapted to the age and delicacy of skin of the child. The "Mustard Leaves," so called, of Rigollot and others, are not applicable to children. They are too strong, and should not be used for them except on an emergency, or if nothing else is at hand.

The Linseed Poultice.—This derives a good deal of its utility from the warmth and moisture that should always characterize it. It facilitates the action of the skin, and by its heat causes dilatation and increased fulness of the superficial blood vessels, which fill themselves at the expense of those that are more deeply situated. Thus it partakes of the character of the mustard poultice by deriving blood from internal congested parts (though in a lesser degree), and thereby relieving them. Nor can its genial warmth and moisture fail to soothe the irritated nerves of the affected part and induce a healthier action. Therefore, for all these reasons, a linseed poultice also, to do all the good it is capable of, should be large—indeed *very* large.

There is no benefit to be obtained, but probably the

reverse, by allowing a linseed poultice to remain on after it has got cold. When one becomes cold, another hot one should be put on, and so on for as long as may be necessary in each case. But if the outside of the poultice be covered with a piece of oiled silk, with the edges tucked in around it, it will keep moist and warm much longer than it otherwise would do. As a rule no muslin or other substance should intervene between the surface of the poultice and the skin. Linseed poultices are used in all the cases mentioned as being benefited by mustard poultices; they are also largely used in surgical maladies,—to sores, wounds, and injured parts—and in others also, hereafter to be named. For the method of preparation, a most important yet a most rarely understood thing, see Prescription No. 5.

The Bread and Water Poultice.—Generally speaking this is not so useful as the preceding. It gets cold sooner, it has not the power of forming so bland, smooth, and oleaginous a mass, it soon begins to smell sour, and it is seldom so soothing: but it is considered to be milder in its action, or, as people say, "not so drawing." Where, however, there is difficulty or delay in obtaining linseed, a bread poultice is a good substitute; and also in other cases where its use is altogether to be preferred. All directions with regard to the application of linseed poultices apply equally to this. (For mode of preparation see Prescription No. 6).

Leeches.—Children bear the loss of blood badly, nor does the necessity for it arise but very occasionally. "Bleeding" (strictly so called) they probably *never* require, and leeches very seldom.

After this, I need scarcely say that leeches should never be applied without the direction of the medical attendant. The loss of blood in children is a remedy (or an evil) not to be played with, or to be adopted without urgent necessity. The cases in which leeches are most likely to be required,

are acute inflammation of the brain, inflammation of the lungs in quite an early stage, violent convulsions succeeded by long continued insensibility and stupor, sudden and rapidly progressive croup, and in some diseases of the heart where an obstruction to the proper circulation of the blood exists.

One leech draws *on an average*, including the bleeding that occurs after it falls off, from half to three quarters of an ounce of blood.

The application of a leech (or leeches) is much more simple and easy than those who are asked to undertake it usually seem to suppose.

It is first of all necessary that the leech be healthy, or the utmost tact will fail to make it "take." Next, the skin where it is to be applied should be scrupulously clean, free even from an odour of soap, for the leech is a fastidious beast and must be conciliated. If possible, a spot should be selected situated over a bone, or in some place where firm pressure can be exercised when the leech has dropped off: and this may chance to be an important precaution to have taken. If leeches are to be applied, it ought so to be managed that the child does not see them; the sight terrifies him, and his fright is the cause of great distress to himself, and of increased difficulty of application to the attendant. The leech should be put into a wine-glass (or a liqueur-glass, or a pill-box), and this should then be turned upside down upon the spot where it is desired it should adhere. The glass ought to be held steadily but without pressure in this position, till the creature has taken hold, and then its tail should be gently detached from the inside of the glass, which may now be removed. If as many as two or three leeches have been ordered, they may of course all be applied at once in the same glass, or they may be put on separately in different situations, according

as may be directed. When the leech has done its work it will drop off; but cases sometimes arise when this event should not be waited for. I have said that children bear the loss of blood very badly, and occasionally during the process a child may become pallid and faint, and then the leech should be removed at once, and subsequent bleeding instantly stopped by firm pressure upon the oozing spot. As a rule, too, leeches may be taken off as soon as the urgency of the symptoms obtains manifest relief, which sometimes happens before the creatures are satiated. If three or four have been applied, and though two or three have dropped one remains adherent but almost inert, it should be taken off without waiting for it to drop; the prolongation of the process is useless, besides being wearisome and exhausting to the little patient. On an average, leeches do not remain on more than twenty minutes or half-an-hour.

The Stopping of the Bleeding is very often a matter of some difficulty, and therefore most medical men find it advisable not to leave the house till they are satisfied that it is arrested. For the same reason also it is very seldom necessary to encourage the bleeding by warm sponging or poultices; the bites will bleed *quite* enough without that.

Perhaps the best method is, first to sponge over the part with *cold* water, then to place a firm and compact little pellet of cotton wool over each bite, and having previously greased the end of the finger (to prevent it sticking when withdrawn), to apply steady pressure for at least ten minutes to each pellet. If then the oozing has ceased and the little pad of cotton wool seems likely to stick fast, the finger may be removed.

If this plan fails to stop the bleeding, the pellets should be removed, the part again sponged with cold water, and fresh pads of cotton wool soaked in strong tincture of iron *

* Known as "Liquor Ferri Perchloridi" by chemists.

should be applied as before, gentle steady pressure again being kept up for a time.

If this means should fail, removal of the pads and cold sponging must once more be practised, and then some powdered matico leaf, or some tannic acid, may be thickly dusted over the bleeding points;—or, as a *dernier resort*, each point may be just touched lightly with a stick of lunar caustic, the end of which has been sharpened.

It will be quite necessary, however, if the bleeding seems likely to prove intractable, to send for the medical man *before* this list of remedies is exhausted; but of course pending his arrival, they may be actively and perseveringly proceeded with, but without fuss or confusion, which is only productive of harm to the sensitive little patient, and of bad management of the remedies employed. The child should not be left for the night, nor for any long time in the daytime, until no doubt exists that the bleeding has finally ceased.

CHAPTER III.

ON THE DUTIES OF THE NURSE AND THE RESPONSIBILITY OF THE MEDICAL ATTENDANT.

In the limits of such a work as this, it is quite impossible to enter fully into the very extended subject of nursing; but at the same time a few broad principles should be indicated, and a little general advice given, since in *all* cases good nursing is most important; in many, the *efficient* services of the nurse are as invaluable as those of the doctor, and in some few others, I believe them to be even more so. But the services of the nurse must always be entirely dependent for guidance upon the directions of the doctor. I wish to be understood as referring here to nursing in the true sense of the word, and not to the ignorant and unskilful, though undoubtedly kind, attentions of an incapable person.

Disease may sometimes baffle and foil the doctor's best efforts, but there is one thing that tries and disheartens him more than this—for this he expects,—and that is the want of intelligent co-operation from the mother, nurse, or friends of his little patient; the want of any system of attention that is worth calling nursing, and the want even of a faithful execution of his instructions. How often does he leave the bedside wishing that circumstances would allow him to nurse his little charge, whose life is trembling in the balance, *himself;* and despairing of success unless his efforts are aided by those who have the sick child under their sole care for twenty-three hours and a half out of the twenty-four!

The fact is, a very large section of the community attach too much importance to the doctor's visit in one sense, and

not enough in another. Too *much*, because they seem to think that some occult virtue lies in his merely seeing and examining the patient, and because they ascribe a perhaps overrated value to the mere medicine that he prescribes; forgetting that drugs often owe much of their healing efficacy to external assisting circumstances. And parents are apt, on the other hand, to attach too *little* importance to the doctor's visit, inasmuch as they very often treat lightly, or carelessly carry out, his distinct directions about the general management of the sick child, to which he attaches quite as much importance as to the giving of medicine.

On the Duties of the Nurse.—The duties of anyone who undertakes to nurse a sick child, especially in a severe illness, are many and various, and require her whole time and attention. She should attempt to do nothing else at the same time, but give her undivided mind and energies to the work. She will not possess one of the most valuable characteristics of a good nurse, unless she has that intuitive faculty of perceiving what the sick one wants, so readily as to enable her to supply the want before it is expressed. Her duties are three-fold. She must carefully attend to all matters relating to the little one's personal comfort;—she must keep a constant watch over the sanitary conditions of the sick-room;—she must faithfully remember and scrupulously carry out all the doctor's directions, and must accurately report to him all connected with the child and its illness that occurs during his absence;—and, to be a really good nurse she must have certain personal qualifications.* Let us glance at these points a little more in detail.

(1) A good nurse should have a love for little children which outlasts their laughter and attractiveness in health,

* There is one other—I was almost going to say *requirement*—brains and knowledge enough, should anything unforeseen happen, to act immediately on her own responsibility.—H.S.

and that does not weary when disease makes them cross, irritable, and unthankful;—and she should have a temper whose serenity cannot be ruffled by the petulance and waywardness of the little one in her charge.

(2) She should have a gentle winning manner with children, and yet be capable of kindly firmness.

(3) She should be very clean and neat in her own person, and should wear materials that do not rustle as she moves about. She should be orderly moreover, for the curing of disease cannot but be hindered by confusion.

(4) She should speak in a low distinct voice, but should never whisper in the sick-room or allow others to do so, except during the patient's sleep;—there is nothing more aggravating to man, woman, or child than to see or hear others whispering.

(5) She should have a steady but light and tender hand, and a soft and noiseless footstep: not however going on tiptoe, which is another form of "fussy sham quietness" as aggravating as whispering.

(6) If she can sing, so much the better; for upon most children, either in health or illness, a wonderfully soothing and tranquilizing effect is produced by singing to them in a low modulated tone. I have more than once known the low crooning of hymns or old ballads induce quietude and sleep, in a child rendered irritable and restless by fever, when drugs had failed.

First. In attending to the personal comfort of the little invalid, the nurse has to see that the linen that is worn is dry, clean, and sweet; that the bed-clothes are well aired, fresh and sweet also, and neither too scanty nor too warm or heavy. She must take care that the posture of the child (if it be a little one) is easy, and in many diseases this is a matter of great importance. In diseases of the chest the little one will only be easy when supported by pillows in a

half-sitting attitude; whereas if there is inflammatory disease in the belly, the only easy position is when lying flat on the back with the knees drawn up. She should attend to the condition of the skin,—if it be moist with perspiration she should occasionally dry it with a soft towel; if it is burning with fever, she should sponge it with cold water; and if it is cold and chilly, she should add a warm coverlet to the clothing and put a hot bottle in the bed. Of course there are also many other many minutiæ to which it would be tedious here to advert.

Second. The nurse has many duties in the regulation of the sick-room of a sanitary character. She should allow no one to stay in the room, except one of the parents, save to perform a duty. A number of persons around a sick child excite and worry it, and do great harm in many ways; moreover, they render the room close and oppressive. She must keep the apartment free from all smells of every kind. There is no need whatever, with good management, for the sick-room to have the faint, oppressive odour that usually characterizes it. The sick child's food should never be allowed to remain in the room, either before it is wanted or afterwards. Every evacuation should at once be removed, carried downstairs and emptied; every article of soiled linen or apparel must also forthwith be changed, and if the child is sick, the work of purification must not be delayed. Fresh air is a more wholesome and agreeable sweetener of the apartment than burnt brown paper or pastilles, or "ribbon of Bruges."* The constant change of the air of the room by means of ventilation (as described in the chapter on that subject) must be attended to: it is one of the *chief* duties of the nurse. "So long as the patient is in bed, there is little,

* A celebrated medical lecturer thus began his discourse one day: "Gentlemen, fumigations are of the utmost importance. They make such an abominable smell, that they compel you *to open the window.*"

if any, risk of cold being caught from a partially open window." (Dr. C. West.) She must not allow clothes to be dried in the room, nor cooking to be performed.

She must keep the temperature of the room at an equable level, and this cannot be guessed or judged of by mere feeling, but must be regulated by a thermometer placed near the bed. The best average temperature is about 60 degrees Fahrenheit; but in some diseases, such as those of the chest, it is prudent to let it range as high as 65 degrees, or even slightly higher. The degree necessary should be mentioned by the doctor. The temperature of the room should remain as nearly as possible at one point.

The nurse must regulate the amount of *light* admitted. Now I believe (as I have stated on a previous page) that in a great majority of cases of illness, the only regulation that the light needs, is to let it stream freely in, though without dazzling the patient thereby; but there are undoubtedly many diseases in which children are benefited by being in a partially darkened or twilight room, such as in diseases of the brain or nervous system and of the eye, in the acute stage of fevers, in inflammation, and whenever undue excitement prevails. This the nurse must see to, having first obtained the doctor's directions as to the degree of light that is proper. Candles are better than gas in a sick-room, and a little lamp (free from smell) with a green glass shade is better than either. Lights should be placed *behind* the little patient or out of his sight. Little children when in acute illness should be turned with their faces *from* the light: but all children when they are getting better should seek the light, and the more they get, the sooner they will be well.

Quiet must be strictly preserved by the nurse. It is not the absence of *sound* in itself that is so necessary,—because the nurse may sing or tell nursery stories or tales from the Bible, to lessen the monotony of her suffering little charge,

—as it is the absence of all discordant sound or *noise;* the opening and shutting of doors, the trampling of feet, the noise of voices, the clatter of crockery, the rattle of wheels; —none of these are *soothing* sounds. All sounds, too, should be avoided that give rise to speculation or matter of thought or suspense to the little sick one; such as persons talking outside the door, or persons walking overhead, or any other sound that causes him to *wonder* who it is, and what they are doing or saying.

Third. The nurse must both faithfully remember and carry out all the doctor's directions, and must bear in mind and report to him all that occurs in connection with her charge during his absence. And it seems here very necessary before we go any farther, distinctly to determine what is the nurse's position with regard to the doctor. *"First, however, I must remind you that the nurse is not the doctor; that she never can be; that if she forgets her proper place, and tries to interfere with his duties, or to set herself above his directions, instead of being a blessing she will be a curse; instead of promoting the sick child's recovery she will very often hasten its death. 'Oh,' says a nurse sometimes, 'the doctor is quite a young man, and I have been a nurse these ten, or twenty, or thirty years; I have seen a great deal of children. I am sure I ought to know; and Mr. Jones or Dr. Smith who attended where I lived as nursemaid used to do quite different from this.' And thus, having disobeyed the doctor's orders, it constantly happens that the nurse is afraid to tell him the full extent to which she has gone against them; but either professes to have carried them out, or else, in trying to justify herself for

* The above lengthy quotation from one of European reputation is so extremely to the point, so wise, and so much better expressed than anything that *I* could say on the subject, that I offer no apology for placing it before my readers.—H. B.

having deviated from his directions, makes an incorrect report of the patient's condition. When this is done, one of two things is sure to happen. Either the doctor is displeased at what he considers an improper neglect of his directions, is cross, perhaps hasty, in his manner, or even angry with the nurse, and rude to her; and thus personal dislike arises between the nurse and the doctor; she goes against his orders as often and as much as she dares, speaks against him to the child's parents, makes them very anxious, very unhappy, and being constantly with them, while the doctor is only there for a few minutes at a time, induces them sometimes to join in thwarting his wishes: and all this time the child gets worse and worse, and at length dies. Or, the doctor believes to the full the exaggerated statements which he hears, alters his practice under the belief that such changes were necessary, when in reality they were not desirable, and the nurse gains a triumph;—*but what becomes of the patient?* . . . But I would remind all nurses that even the youngest doctor must have a great deal more knowledge about diseases and about remedies than almost any nurse can have. The nurse hears that one child has inflammation of the brain, another has inflammation of the lungs, and so on; but she knows almost nothing about these parts of the body, except that people breathe with the lungs and think with the brain. The doctor has had to learn how these parts are made and shaped; how it is that the lungs serve the breathing or the brain in thinking; and he has seen what nurses have not, the changes after death that disease has produced in these very parts. Hence he is a much better judge of what the danger to be feared is in this case or in that, and consequently, of what will be likely to be the best means of removing it. Besides, there are certain means of making out the progress of some diseases with which the doctor is

acquainted, but of which, without any fault of a nurse, she is necessarily ignorant; as, for instance, the listening to the chest in order to judge by the sound of the breathing, or the beating of the heart, whether these parts are doing their duty properly, or whether disease in them is growing worse, or getting better. The experience, too, of even a young doctor is in reality larger than that of an old nurse; he has seen a great many cases in the hospital when a student, and studying them with the advantages of his superior knowledge must have learnt more about each than a nurse possibly can have done, while the mere number of patients seen by him is much greater than can have come under the notice of any nurses, with the exception of the few who have themselves been for years engaged in a hospital. . . .

"I never yet knew the doctor who would not listen with attention to the remarks of a careful judicious nurse, or consider her suggestions; but when she has nothing more to say than such stuff as, 'The poor thing will be lost for want of strength;' or, 'I never saw any good come of those nasty blisters;' or, 'I am sure all that calomel is not fit for a child;' or, when she says, 'I thought the child would have died several times in the night;' or, 'I thought he would have gone into fits;' or says he is much better or much worse, without being able to give reasons for her opinions; or always talks in an exaggerated way, of 'burning-hot,' or 'stone-cold;' or declares that a child 'takes nothing at all,' when it turns out that he has had a little tea, or a little barley water, or a little arrowroot; no attention will be paid to her."*

Let the nurse, then, restrict herself to her own duties, where she has the amplest scope both to gain praise for

* "How to Nurse Sick Children." Dr. C. West. London: Longmans. Ed. IV., pp. 20 and 25.

[Advice to my readers]—Buy it and study it.

ability and well-doing, and to become an incalculable blessing to those whom she serves.

When the doctor makes his visit, the nurse should at first only answer in a straightforward and concise manner the questions that he puts to her. Then if she has any information to give, which his questions have not elicited, she should give it, clearly and to the point; but she should never offer any opinion without giving *good* reasons for it, nor unless it is required. She should preserve the evacuations for the doctor to see on his way downstairs. She should listen carefully to all his directions, and if he should omit to give instructions on any point in the management of the sick child, or of diet, medicine, applications or baths, she should ask for them, and be careful that she understands and remembers them, and sees that they are practicable before he leaves the house.

But in every case of serious illness, the doctor leaves so many directions on so many different points, that none but the most practised nurses will be able to bear them all in mind, or to carry them out with anything like method. It is often a most perplexing matter how to arrange the hours for medicine, nourishment, wine, baths or poultices, sleep, and other essential points of treatment without their clashing one with another. Therefore it is wise to jot down notes of the doctor's directions before he leaves, and then afterwards to arrange the details in writing. The best way of doing this is to make use of what may be called the Nursing Plan.* Take a large open sheet of letter paper, and rule it in six columns: let the first, a narrow one, be for time, the second for food, the third for medicine, the fourth for sleep, the fifth for evacuations, and the sixth for noting pulse and temperature, morning and evening, and any other

* This is now used by many physicians. In my own practice I have found it most useful.

SPECIMEN OF T

IT IS HERE SUPPOSED TO BE FILLED UP BY ONE DAY'S NURSING I

DATE.—*June* 23, 187—. UNTIL IT W

HOUR.	FOOD.	MEDICINE
1 A.M.	Milk, ½ cup, about 3 oz.	Poultice to throat.
2 ,,		Mixture given.
3 ,,	Beef-tea, ⅓rd cup, about 2 oz.	Poultice.
4 ,,		
5 ,,	Milk and brandy (5.30), ½ cup.	Poultice.
6 ,,		Mixture given.
7 ,,	Beef-tea, two ounces (7.45).	Poultice.
8 ,,		Wash applied to back
9 ,,	Arrowroot, milk and brandy, ½ a cup (9.30).	Poultice.
10 ,,		Mixture given.
11 ,,	Chicken broth, ½ a cup.	
12 NOON.	(11.45). Calves' foot jelly.	
1 P.M.		
2 ,,	Egg, milk and brandy, ⅓rd of a cup (2.30).	Mixture given.
3 ,,		
4 ,,	Beef-tea (4.35), ⅓rd of a cup.	
5 ,,		
6 ,,	Jelly (6.30). Beef-tea, 1½ oz.	
7 ,,		Mixture given.
8 ,,	Arrowroot, milk and brandy, 2 oz.	
9 ,,		Wash applied to thr
10 ,,	Beef-tea, 2 oz.	
11 ,,	Milk, 1 oz. (11.10.)	Mixture given.
12 NIGHT.		

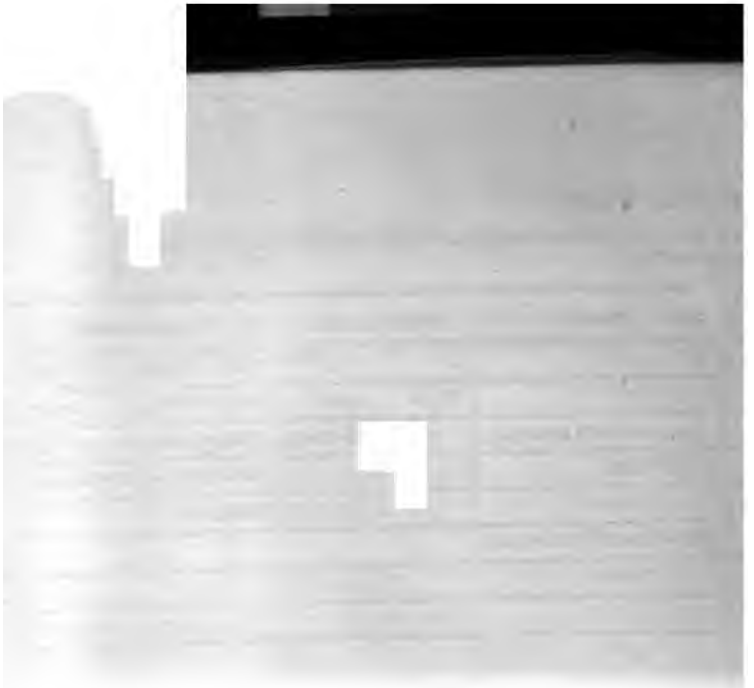
* This is only given as an example of "the Plan," and the way of fi

URSING PLAN.

E OF SEVERE SCARLET FEVER, NO FACT HAVING BEEN ENTERED
PLISHED.*

	Sleep.	Evacuations.	Other Notes.
			1.20. A quantity of sticky
		Water passed :	white mucus, and shreddy
	Slept restlessly from 3.15	scanty and strong.	matter coughed up, after
	to 5.20.		which swallowing became
			easier.
	Slept soundly from 6.10		
	to 7.40.		
at.		Water passed.	Temp. 102·5. Pulse 120.
		Vomited after medi-	
		cine.	From 11.0 to 3.0 about,
	Slept from 12.5 to 1.30.		there has been great rest-
			lessness and tossing, not-
			withstanding one short
	Restless doze from 3.10	Water passed.	sleep.
	to 4.30.		The skin of the lower part
			of the back appears to be
			getting sore.
		Bowels acted freely.	
			Temp. 104. Pulse 135.
		Water passed :	Cold sponging in evening
	Slept from 11.20 to 12.0.	scanty, thick,	seemed to give great
	Still asleep.	and offensive.	relief.

The accuracy of the above combination of facts is not vouched for.



matters worth recording. Each order as it is executed should be ticked, and each order that has not been executed from some cause or other should be crossed out. Thus, at the doctor's next visit he obtains a comprehensive and accurate view of all that has been done for, and taken by, his patient since he last saw him. An example will best show the way of keeping this record. (*See accompanying Plan.*)

No one can nurse children successfully who is not strictly *truthful* with them. To do anything with a sick child we must have its confidence. If he is told that the medicine that has to be taken is not nasty, or that the mustard poultice or the lancet will not hurt, or any other well-meant ain trust the person who told it, and unmanageable.

management and untruth is to into compliance with an unwel- of "what the doctor will do" to rk hints that "he will take them reat them; thus foolishly (and work the doctor has been doing and trust, and representing him the friend of his little patient. eakened by this absurd practice; epends in a great degree on his this folly rebounds on to those

is a very important part of a is an act easier to be ordered ords upon it will not be out of

of a few qualities of mind, that every person *ought* to possess, will render easy the otherwise difficult feat of administering medicine. Kindness and patience united with *firmness and tact* will overcome the

resistance of all but spoilt children. If all persuasion and moral means are unavailing with such as these, it is best for some one, without fuss or parade—the child being held in the lap with the head somewhat thrown back and kept so —gently to hold the hands while another closes the nostrils; the child instantly opens his mouth to cry, and the spoon seizes the opportunity to pass quickly in, and empty its contents at the back of the mouth. The nostrils should not be released from their gentle closure until the medicine is swallowed, which it will of necessity be, at once. But if this measure should not succeed either, there is nothing for it but to use Dr. A. T. Thomson's patent medicine spoon. Its action and mode of use will be better described and illustrated by the druggist of whom it is bought than they can be here.

The gentle means of kindly persuasion and judicious exercise of authority should, nevertheless, have a thorough trial before coercion, however gentle, is had recourse to. For there can be no doubt that the excitement, passion, and tears caused by the struggle ensuing over a dose of medicine or a proposed bath, in many maladies does the child more harm than the remedy would do good.

On the Responsibility of the Medical Man.—It is important for the parents of children to choose a medical adviser in whom they can have *complete confidence;* for unless they have this confidence, when illness comes, their natural anxiety and unhappiness will be increased a hundredfold; they will be haunted by a questioning spirit as to whether all that human skill can do is being done, and as to whether some other doctor is not more skilful;—for well-meaning friends are sure to come and extol the special virtues of their own respective medical attendants. Moreover, they are very likely while in this state of mind to offer some slight to the doctor in attendance, that

they would shrink from doing when calmer and more collected. And this is only part of the evil of a want of confidence. If it exists, the medical man never fails to detect it;—it too often damps his ardent wish to carry the case to a successful issue;—his active, earnest interest *cannot* fail to be diminished, and he proceeds conscientiously as a duty merely, but stimulated to do his very utmost as a pleasure—hardly.

In the illness of a child, however severe, a parent should commit its life, *under God*, to the care of a doctor who is believed worthy of the trust. His directions should be obeyed unquestioned and implicitly, *for he has taken upon himself the responsibility of the position*, and will do all that man can do. When a doctor sees this trustful reliant spirit, there is nothing that he would not do, to justify its confidence; there is nothing that he would think too much trouble, to bring back the vivacity of health to the drooping little form, and gladness to the hearts of those who have entirely trusted him in their need.

Medical men are always willing and glad to learn *facts* from parents or friends concerning the progress of the little patient, but they are not anxious to hear the *opinions* which are so freely hazarded upon those facts. It is the place of the doctor only to form opinions: those of persons medically uninstructed are positively worse than valueless.

In seasons of illness in a family, the parents often undergo sore trial at the hands of the sympathetic, but thoughtless, of their friends. These latter, actuated (let us hope) solely by the desire of doing good, but which frequently results in great mischief, relate wondrous stories as to how such and such treatment or such a remedy was of the greatest benefit in a precisely similar case that they remember. "*Only try it*," say they, and the sick child is as good as healed,—or if not, at all events it can do no harm. These well-meant

importunities cause many a parent almost to exclaim—"Save me from my friends." But only too often, the advice is taken, the remedy is tried, and the doctor kept in the dark and deceived;—usually with disastrous results. The proper course to pursue is this. If friends privately urge some remedy or course of treatment that they think they have seen efficacious, however plausible, let it not on any account be tried behind the doctor's back, but submit it openly to him for his opinion. If it contains wisdom or a useful idea, he will thankfully avail himself of it and put it into practice; if—as is often the case—it is entirely irrelevant to the case, he will express his conviction of its uselessness. Parents should allow his opinion to finally dispose of the matter.

Bearing in mind that the medical man comes to take the care and responsibility of the case, prepared by years of laborious study, and fortified also in most cases by years again of observant experience, the parent should be careful that in all things he is treated as an educated gentleman, and is left as unfettered in his procedure as the general who manœuvres his army in the presence of an enemy, or the captain who handles his ship in a storm.

CHAPTERS ON SPECIAL SUBJECTS.

CHAPTER IV.

ON THE MANAGEMENT OF THE NEWLY BORN.

THERE cannot be many of the readers of these pages who do not know something, either in their own experience or in that of some of their friends, of the alarm and bewilderment that is felt when a baby is born, neither doctor nor experienced nurse being present. Such an occurrence often happens; and not necessarily from the fault of anyone concerned. The female friends or attendants present are filled with dismay, and feel almost as helpless—from fear of doing wrong—as the infant just cast upon their care.

All that requires to be done is extremely simple. Let us then imagine such a case and give the requisite directions.

The Separation of the Infant from the Mother. The fact of the infant being born will be rendered evident by the exclamations of the mother, and probably by its own cries. Remove him very gently a few inches from the person of the mother, whom his struggling legs may injure. Examine his neck, and if, as is often the case, the navel cord is wound once or twice round it, gently disengage it, or the infant will run the risk of being strangled. If there is any strain on the cord, or if the infant has got it twisted round any of his limbs, it must be freed from strain or pressure.

As soon as the infant has cried, or when his breathing is properly established—but not before,—he may be separated from the mother after the following manner. Turn him gently on his back, and having prepared two ligatures, each

about a foot long and consisting of four or five stout threads apiece, secure one of them *tightly* round the navel cord (by which he is still attached to the mother) with a double knot, at a distance of about two inches and a half from his navel. See that this is done very firmly, yet not so tightly as to cut the cord through. Then tie the other ligature tightly round the cord a little more than an inch nearer to the mother than the former one; this being applied, cut through the cord *between* the two ligatures with a sharp pair of scissors, taking care that the infant's hands and feet are well out of the way of its blades.

Our next care, now that the infant is detached from the mother, must be to protect it from the cold; which it cannot fail to feel considerably, having exchanged the high temperature of its mother's womb (98 degrees Fahrenheit) for the uncongenial air at 60 degrees, or 38 degrees lower. He must be warmly wrapped up in a small soft blanket, or a flannel "receiver,"—but with a sufficient aperture for air,—and removed from the bed to a convenient lodgment within the warmth of a good fire, but not exposed to its direct rays.

Attendance to the Mother.—The folded sheet on which she has probably been lying, and which is saturated with wet and discharge, should first be gently withdrawn, disturbing her as little as possible. With warm napkins her person should be tenderly cleansed and dried; and a well-aired and soft napkin must be applied and left in position between the thighs. No attempt should be made by inexperienced persons to effect the removal of the after-birth. Nature is usually equal to this task unaided, and by means of the contractions of the womb the after-birth is shortly expelled; but if it is not, no harm is done by leaving it uninterfered with until the doctor's arrival; when whatever may be necessary will be done by him.

Until the doctor arrives, the mother should lie perfectly still without altering her position.

If the discharge should be rather too free, a "binder" of stout calico or jean may be applied, and pinned *firmly* and tightly round the lower part of the body. If this does not sufficiently restrain it, firm but gentle pressure with the open hand will be useful—especially if combined with a very gentle kneading motion,—upon the lowest part of the belly; where the contracting womb ought sooner or later to be felt as a hard and rounded mass. If the mother is faint and exhausted, a fresh egg beaten up with half a tumblerful of warm milk sweetened, flavoured with a little nutmeg, and with two tea-spoonsful of brandy added, may be given as a restorative. Stimulants in any quantity larger than this should not be given after the birth of the child, unless circumstances arise urgently demanding them—such as the alarming faintness of flooding,—in which case brandy or wine *must* be given with an unsparing hand.

After the birth of the child, the mother will usually require to be covered for a short time with additional bedclothes, and to have a hot bottle placed to the feet, to counteract the coldness and shivering that often comes on; but as she regains warmth, they should be gradually removed again.

Washing the Infant.—If it is vigorous and cries or breathes freely, this process may take place at once. The attendant who performs it must take her seat before a good fire, having beside her a low nursery washstand, or another chair, on which is a large hand-basin more than half full of warm water (temperature 98 degrees Fahrenheit).

In this the infant may be placed for a short time, its head being supported by the left hand of the nurse, while its body is gently but thoroughly sponged with the warm water. When it is taken out of the bath and laid upon the nurse's

lap, very little difficulty will usually be experienced in detaching the white sticky substance that adheres to its skin, with a very soft flannel or sponge. Castile or glycerine soap is the best, but if the use of soap can be dispensed with (and generally it can), so much the better; it is irritating to the sensitive skin, and very apt in spite of the most careful management to get into the eyes and nose. If this white matter is, however, so tenacious as to resist these means of detaching it, it is better to leave it on, when it will soon dry up and peel off, than by any ungentle friction to injure the skin in removing it.

Care should be taken that none of the dirty water, fouled by the impurities of the infant's body, be allowed to drop into its eyes; if it does, it is likely to cause them to inflame. The face and eyelids should be washed with clean water and a clean sponge.

When the washing is over, the infant may be laid on a pillow covered with two or three napkins and placed on the nurse's knees. This is a comfortable and convenient position in which to dry him, which should be effected with a warm and very soft towel, by gentle pressure and a series of dabs rather than by friction. But when the skin is dry, light and careful rubbing of it with the hand will excite a beneficial glow. Lastly, it is well to use violet powder to all the joints and folds of the body. If the infant is hearty and strong, the nurse may at once proceed to dress him; but if he is feeble or seems exhausted by the previous process, it is better once again to wrap him up in a warm flannel, and place him in bed with the mother to recruit his strength for a while.

The Treatment of the Navel String.—Before proceeding to dress the infant, the navel string should be examined to see if there is any bleeding. Sometimes there is a little oozing, and this is particularly likely to happen if

the cord* was a thick one; for these thick gelatinous cords, after being tied and severed, shrink, and the ligature—without any blame to the person who tied it—becomes loose and permits a loss of blood, which to a new-born infant is often dangerous. If, then, there is any oozing of blood, another ligature, consisting, like the first, of three or four stout threads, should be tied firmly round the navel string about half an inch nearer to the child's body than the existing one.

If, however, the examination of the cord is satisfactory, the next thing to do is to envelop it in linen and place it in a good position. In the centre of a piece of soft linen, three or four inches square, cut a small hole to pass it through: fold the linen carefully over it, and lay it, thus enveloped, upon the belly, pointing upwards. It will be retained in this position by the "belly-band." Many nurses use scorched rag; why, it is difficult to imagine: ordinary linen or lint answers every purpose.

No attempts whatever should be made to detach the navel string; a risk would thus be encountered of producing hæmorrhage (or bleeding), or a navel rupture. At the end of from five to seven days (occasionally a little later) it will drop off, leaving merely a small sore; this should be dressed with spermaceti ointment or oxide of zinc ointment spread on a little bit of lint, until it is healed, which usually happens by the tenth or twelfth day.

Dressing the Infant.—The first thing to be done is to apply the belly-band. This is simply a piece of fine flannel, from three to five inches broad according to the size of the child, and long enough to go two or three times round the body, giving firm support to the navel, and covering and affording warmth to the whole of the abdomen and loins: but it is by no means to encroach on the chest, or it will im-

* I refer to the navel string or "umbilical cord."

pede respiration. It must be carefully stitched, and not pinned on; and should be worn for a month or more, or until the weak spot in the abdomen—the navel—has become firm and strong enough to resist the pressure made upon it from within by the crying of the child. When it is to be left off, by shortening it a little day by day, the change is made gradually.

No hard and fast rule applies to the dress of an infant, provided it is *warm, light, and loose, admitting of free motion of the limbs.* In all reasonable limits, mothers must be allowed the exercise of some free will and fancy in the clothing of their infants, and, so long as the above important characteristics are borne in mind, the number, shape, make and material of the garments is of secondary moment.

Considering how feeble is the heat-generating power of the new-born, it is nearly always wise and safe to let such under-garments as are in contact with the whole skin be of soft fine flannel. The more *simply* an infant is dressed, the better;—simply, I mean, as regards the number of its garments and the facility of their adaptation. Warmth of clothing can be attained without weight. Dressing is at best a wearisome process to the little one, and a cause of lamentation and much affliction. Let us render it as easy as possible.

When the infant is dressed, let it be put to bed with its mother; and if it will nestle into her bosom and take the breast, even though it obtain nothing thereby, so much the better. The best food that can be given to the infant after it is dressed, and before the flow of its mother's milk is established, is a mixture of two-thirds of warm water with one third of fresh cow's milk, with one tea-spoonful of sugar of milk, and one tea-spoonful of lime-water to every eight ounces of fluid. After the mother's milk there is nothing so digestible or nourishing as this imitation of it. It should be

given with a spoon, lest the child, finding the artificial teat easy to draw from, refuse the mother's nipple.

Practices to be avoided.—There are some customs which though time-honoured are ridiculous and even hurtful. We ought now to have done with them.

The nurse or attendant is *not* to wash the head of the new-born babe with spirits.

She is not to administer castor oil or any purgative, unless ordered to do so by the medical attendant.

She is not to give sugar and butter to the child, nor yet gruel.

She is not to use pins in its dress*,—unless they are "nursery" or safety pins—for even its napkins should be made with strings and loops.

She need not use caps as part of the dress of an infant. They keep warm and perspiring a part that should be kept cool, and they predispose to cold.

* "I have seen one who had the skin of the back completely transfixed, as well as the chemisette and bodice. This little being uttered dreadful cries. It continued three hours in this deplorable state, until it had a severe convulsion, and it was not until it was undressed that the cause of the symptoms was discovered. This case should serve as a lesson, and it imposes on all mothers the obligation of undressing children who cry obstinately, in order to discover if perchance some misplaced pin is not the cause."—*Bouchut.*

CHAPTER V.

ON THE RESTORATION OF THOSE SEEMINGLY STILL-BORN.

At the commencement of the preceding chapter, it was remarked that it often happened from various circumstances that the baby was born before any medical man had arrived, and without the attendance of even a practised and reliable nurse.

If the infant born be vigorous and healthy, no worse harm usually results than the alarm and anxiety of the mother and attendant friends, and the prolongation of a condition of extreme discomfort;—evils great enough, but not often containing any *danger*.

But if the child instead of being born strong and hearty, is ushered into the world almost lifeless, the tiny spark of its being almost—or seemingly altogether—extinct, the case is far different. If we wait for the doctor's arrival, or if we delay for *anything*, the little life that had scarcely lived is lost. If restoration is possible, it is only possible by *immediate* action; if that waning spark is ever to kindle to a flame, it must be fanned *at once*.

How important then is it that a knowledge of the proper measures to be taken in such a case should be widely diffused and understood!

The life of one frail and as yet scarcely living child might seem to some of but small account: but in preserving it we may be "entertaining an angel unawares." Some of the

greatest men of our own and other countries had the feeblest hold on life when born.*

There are three classes of cases that are met with under these circumstances:—

(1.) Cases in which incipient putrefaction or malformation of some part, to such an extent as to be incompatible with life, are evidence that the child is absolutely *dead*.

(2.) Cases in which the child on coming into the world, from debility or some other cause, makes no effort to breathe, and lies as if dead.

(3.) Cases in which respiration has been partially commenced, but where the infant seems incapable of continuing it from extreme feebleness.

In the first of these cases of course nothing can be done. It only remains at once to separate the dead infant from the mother in the manner detailed on page 208.

In the second and third classes of cases much can and should be done.

If, when the umbilical cord (or navel string) is seized between two fingers, *no* pulsation whatever is felt, this indicates that there is no longer any *vital* connection between the system of the mother and the child, and that nothing is to be gained by continuing the communication. Therefore the cord may be at once tied and divided, and those measures of restoration put in force, which will be subsequently described. If, however, pulsation is felt, no matter how faintly,

* "One Christmas day a premature posthumous son was born in England, of such an extremely diminutive size, and apparently of so perishable a frame, that two women who were sent to Lady Pakenham, at North Witham, to bring some medicine to strengthen him, did not expect to find him alive on their return. As it was, the frail boy grew up into Newton, lived more than four-score years, and revealed to mankind the laws of the universe. If he had perished, England would not have been what it is in the world." Dr. Wm. Farr. On Mortality of Children in the Principal States of Europe.

the cord must not be tied until either the child cries and respiration is established, or pulsation ceases in the cord.

It is best first of all to pass the little finger into the mouth and well to the back of the throat, in order to sweep out any obstructing mucus that may be there, and perhaps, by the titillation of a very sensitive part, to induce movements that may result in respiration.

Then with a napkin rub the surface of the body briskly, and perhaps not so gently as is usual under other circumstances. I have also often found it very useful, having laid the infant on its back, to administer a succession of light but unmistakable *slaps* to the surface of the chest and belly, with a napkin or soft cloth dipped in cold water. The shock thus produced by the smart application of the cloth and the breeze of cold air together, usually succeeds in producing a gasp, a cry, and ultimately an established breathing. If these methods seem likely to fail, at the same time that they are being continued, strong smelling salts may be applied to the nostrils, the back of the throat may be tickled with a camel's hair paint brush dipped in brandy, and a hot bath may be got in readiness. These means of restoration should not be abandoned until pulsation in the cord has ceased; but directly it *has* ceased, the child should be separated from the mother.

If its head and face are swollen and purplish or livid, and the pulsations in the cord strong, the separation may be effected in this way. Tie the cord four or five inches from the body of the child: then, having slipped a noose of threads round that portion of the cord which adheres to the child, at about two inches from its body, sever it about one inch from the first ligature *on the side of the child*, allow two or three teaspoonsful of blood to escape, then draw the noose tight, tie it, and prevent the escape of any more. This often relieves the overcharged vessels of the head, but the process

should be performed in as short a time as it can be described.

If the means above-mentioned fail to produce animation, the infant must immediately be immersed in

The Hot Bath—which should have a temperature of about 100 degrees Fahrenheit. It ought always, if possible, to be used *before* artificial respiration has been practised, but, since its preparation occupies a minute or two, its use sometimes comes afterwards.

The infant ought to be fully immersed; and it should be remembered that whenever the bath does good, *it does it at once.* Nothing is to be gained by keeping the child in it longer than a minute, but valuable time that might be better employed is lost. If it succeeds, and breathing or crying is excited, the child must be taken out and treated in the manner described on p. 219. If it fail to excite respiration *immediately*, the infant must be taken out and wrapped in warm flannel.

Artificial Respiration must now be put in force. Lay the child at once upon its back on a warm blanket spread over a table near the fire. Slightly raise the shoulders by means of a folded flannel placed underneath them, then open the mouth, draw the tongue well forward and keep it in that position by an elastic band passed over it and under the chin. Then gently grasp the arms just above the elbows, and draw them upwards until they meet above the head. (By raising the ribs, this causes air to be drawn into the lungs.) Keep the arms in this position for a moment, and then bring them down to the sides of the chest, against which they should be firmly pressed for a second or two. (By depressing the ribs again, and by the pressure, this tends to force the air out of the lungs.) These simple movements are to be gone through regularly and unintermittingly, from twelve to fifteen times in every minute, and they should be perse-

vered in for a considerable time; for respiration is thus sometimes ultimately restored, long after every chance and hope of life might seem to have departed.

Insufflation.—Though I do not consider this method so reliable or successful as the preceding—for it is open to many objections,—I nevertheless describe it, since it has been often attended by good results.

Having placed the infant in the same position as for artificial respiration, gently close the nostrils with the fingers of one hand, and let the other be ready to exercise intermitting pressure upon the lower part of the chest and the upper part of the belly, between each breath of air with which the lungs are inflated.

An attendant is then to place her own lips to those of the child, with a piece of muslin intervening, and, having drawn a deep breath, is to force the air into its chest. Then the hand which is placed upon the chest and stomach is to exercise gentle pressure, as directed above, in order to expel the air that has entered; then another breath of air is to be forced in, and another external squeeze to be made, and so on in regular succession for some time, or until results are produced.*

A small pair of bellows are sometimes substituted with advantage for the mouth and breath of the operator. The nozzle should be passed well back into the mouth, the nostrils closed during each inflation, and the lips closed around the tube of the bellows. Not more than fifteen or sixteen inflations should be made in a minute, and they

* Another plan.—Close the nostrils with the fingers of one hand, and with the other press the windpipe of the child backwards towards its spine; this will close the gullet (or swallow) and prevent the air entering the stomach. Then when the lungs have been inflated, as described above, compress the chest firmly with both hands, so as to empty it, and again proceed as before.—H. S.

should be performed at regular intervals, and very gently. After each inflation, the nostrils may be allowed to open, and pressure must be made gently, as before, on the surface of the chest and belly.

The disadvantages of these processes, as compared with artificial respiration, are obvious. (*a*) They do not imitate the natural motions of the chest in breathing. By means of artificial respiration those movements are produced. (*b*) The breath of another person is but very impure air with which to dilate an infant's lungs. (*c*) No precaution can adequately prevent a large amount of the air thus blown in, from passing into the stomach instead of into the lungs. (*d*) Air may be forced in with such violence as to cause rupture of the air-cells, and, if the infant be restored, subsequent disease.

The time for giving up hope and ceasing all attempts to produce animation has never arrived, until the ear, applied to the chest for a minute or more, can distinguish no pulsation of the heart whatever. As long as any beating, however feeble or irregular, can be made out, there is hope, and there should be activity of measures. The ear applied to the region of the heart is a more trustworthy guide than the hand.

Treatment when breathing has commenced.— The infant is to be gently rubbed with warm flannel, wrapped in warm flannel, and placed in a warm bed, taking care that air is not excluded. It will require constant watching for many hours afterwards.

CHAPTER VI.

ON THE COMMON DISORDERS OF THE FIRST MONTH.

THERE are several deviations from a healthy condition liable to occur shortly after birth, that give a good deal of anxiety to the parents, and present a wide field for mistaken ideas and improper treatment on the part of the nurse or mother, or amateur prescribers. The proper course to take when any one of these disorders arises, is to name it to the medical man in attendance, and then to abide by his counsels and carry out his directions.

An enlightened knowledge of the nature of these ailments, however, can be of nothing but benefit and service to those who have the care of infants; they are thereby enabled to carry out the doctor's treatment more intelligently, they are more on their guard as to *what may* supervene, and they are able better to understand the import of any symptoms that they may see. Some information on treatment will be useful on an emergency, or where medical advice is out of reach.

I. SWELLINGS ON THE SCALP.

It is not at all an uncommon thing for a child, on examination after birth, to be found to have a rounded swelling of greater or less size, on one side or the other of the top of the head. The swelling may vary in size from that of a very small hen's egg to that of an orange. It occurs more often on the right than the left side of the head; it is soft, sometimes doughy, and sometimes after a time a hard ridge is felt all around it: if the skin is very thin it may assume a purplish

colour, like a bruise. It is formed by the bulging produced by the escape of a greater or less quantity of blood into the loose cellular tissue of the scalp: and this escape of blood is in most cases caused by long continued and violent pressure of the head against the structures of the mother, during a difficult labour.

The Treatment is very simple. Do nothing. Nature will cure it. It very seldom happens that the swelling does not subside in the course of a few days without interference.

The absorption of the blood and the subsidence of the tumour has now and then seemingly been accelerated (especially if the skin was hot) by the use of some such cold lotion as Prescr. 7.

Certainly no interference but this is called for, except in some rare and exceptional case, and the majority of cases are best let alone.

II. Scaling off of the Skin.

This must rather be regarded as a natural process than as a disease.

On the first or second day of existence, the superficial or *scarf* skin begins to crack, loosen, and peel off, and from the third to the fifth day the process is going on all over the body. In some infants this peeling is hardly perceptible; in others it is so marked as to cause anxiety to the mother, until she is assured of the harmlessness of the condition. It usually lasts for ten or twelve days, but is occasionally prolonged much beyond this limit.

Fresh skin forms very rapidly in parts exposed to the air, but not so in the folds of the body, the groins, neck, armpits, &c. In these situations there is apt to be redness and irritability, which is best prevented or allayed by protecting the parts with a good dusting of violet powder or oxide of zinc powder. No other treatment is required.

III. Swelling of the Breasts.

It often happens that an infant of either sex, when two or three days old, begins to suffer from a painful swelling of one or both breasts. Ignorant nurses (who ought to be merely charwomen) call it "the stagnation of the milk," and they support their theory by the fact that a few drops of whitish viscid fluid may sometimes be squeezed out. This most unfounded idea has given rise to the practice of attempting to force out the "stagnant milk" by a series of rude and pitiless squeezings. The hapless infant suffers terribly, and inflammation and gathering is the usual result. I am afraid to say how many times I have seen abscess follow this cruel treatment.*

Treatment.—A large majority of cases would get well if nothing at all was done; but they recover sooner, and the pain of the infant is alleviated, by using warm fomentations, either of mere warm water or of decoction of poppy heads. A soft bread or linseed poultice, occasionally applied also, is very soothing and beneficial. Rubbing and squeezing are always hurtful.

IV. Tongue-tied.

An infant is said to be tongue-tied, when the fold of mucous membrane, by which the under surface of the tongue is attached to the floor of the mouth, is unduly short, or continued right along it to its tip. A very great many children are supposed to be tongue-tied, out of which number there are but few who really are.

How then are we to determine who are, and who are not?

If the fold of skin is too short, the tongue cannot be

* Another erroneous idea is that the "nipple strings" should be broken to enable the future woman to suckle well!—H. S.

moved and the tip is "channeled like the heart of a pack of cards." If the finger cannot be freely passed under the tongue, if the tongue cannot be raised to the roof of the mouth, and if the child cannot protrude it outside the mouth, the fold is too short, and the child *is* tongue-tied. But if, while any of these symptoms are present, the child sucks easily and is satisfied, interference is not called for.

Or again—if an infant on taking the breast, is only able to seize the nipple uncertainly, and sucks noisily, while the milk is allowed to run out at the sides of the mouth from the inability of the tongue to grasp the nipple, that infant is tongue-tied and must be relieved.

Interference is needless, and the child is either not tongue-tied at all or only imperfectly so, if he can protrude his tongue, if he can suck efficiently, or if the finger can be readily passed beneath the tongue in front.

Treatment.—This is altogether a matter for the medical attendant. No one should take into their own hands the means for the relief of this condition, which, though simple enough, is by no means without risk *in unskilful hands.*

I only describe the operation here for the instruction of those who are far out of reach of medical aid. The child, seated on the nurse's lap, should have its head inclined backwards and firmly held in the same position by one who will not be rendered unsteady by its cries. The operator, standing behind the child's head, then raises the tongue in front with the thumb and first finger of one hand, the "tongue string" being between them; and holding a pair of *blunt*-pointed scissors in the other, and *directing their points well downwards*, makes one snip of about one-sixth of an inch only, in the fold of mucous membrane restraining the tongue. If the tongue is not thus sufficiently liberated, the finger nail will do the rest.

The points of the scissors are directed downwards in order to avoid wounding either one of a pair of blood-vessels which run along the under surface of the tongue in the middle line. If one of these is wounded, a bleeding commences which is most difficult to stop, and which, if no doctor is at hand, will almost certainly prove fatal.

V. Jaundice.

Nearly one-third of all children born become affected within a few days of birth by the peculiar condition of the skin termed *jaundice*. At first the skin is reddish yellow, and if pressure is made with the finger, on removing it, it shows yellow instead of white. In a day or two the redness has gone but the yellow tint remains. By the end of a week the child has usually regained its natural condition. At no time need this excite any anxiety. It is probably caused by feeble respiration, by imperfect action of the skin, and especially by breathing *a cold and vitiated atmosphere*.

Children that are carefully and intelligently tended seldom have it; while those who are exposed to cold, or who are kept in close rooms, seldom fail to have it. Feeble and premature children are more subject to it than those that are strong and hearty.

Treatment—In an ordinary, simple case nothing is required but attention to the purity and warmth of the air, and to the warmth of the clothing. If the yellow tint is very deep, one or two doses of a mild laxative may be given—half a teaspoonful of the sweet solution of senna (p. 162), or half a teaspoonful of castor oil.

Sometimes, *but very rarely*, a more serious form of jaundice may attack the new-born infant, depending on malformation.

VI. Red-Gum.*

Red-gum (or red-gown) is a rash coming out very commonly a few days after birth, and occasionally productive of alarm to a young and inexperienced mother. It consists of minute, prominent and very red pimples, interspersed with red points and rosy patches. It may be limited to one portion of the

* "Strophulus Intertinctus"—Erasmus Wilson.

body, or it may be diffused all over it. It is usually dependent on a little acidity of the stomach. It very seldom requires any treatment; but if the rash is unusually intense, one or two doses of lime-water or of fluid magnesia may be given. A teaspoonful of either, for a dose.

VII. Inflamed Eyes.

This complaint, which is a very common one among newborn infants, is not inflammation of the eye itself, but of the mucous membrane which covers the front of the eye and lines the eyelids.

It most commonly appears about the third day, but it may occur later. The inflammation may amount to a mere "cold in the eye," or it may develop into a vastly more serious disorder, that has been termed the "Ophthalmia of the Newly Born."

The "*Cold in the Eye*" is usually caused by a draft of cold air blowing upon the tender and sensitive organ, producing heat and slight swelling of the eyelids, and redness of their inner side and margins, which become sticky and often gummed together by the discharge of matter that generally takes place.

The only *treatment* that this simple form of inflamed eyes requires, is to shelter them from the cold and from draughts, to keep them perfectly clean by *very frequent* fomentation with a soft sponge and warm water, and to grease the edges of the lids with a little olive oil or spermaceti ointment. It is not enough, however, to foment them externally; the lids must be separated gently, and the discharge must be well washed out from *the interior* with a stream of warm water. This process should be gone through every three, or four, or six hours, according to the condition of the eyes. Nurses are in the habit of trickling the mother's milk over the eye,

under the impression that it is "healing." This is nonsense; warm water is in every respect better.

The *Ophthalmia of the Newly Born* is a disease in which medical assistance should be sought at once, since the earlier it is recognised and treated, the more tractable is it, and the greater is the probability of a successful result. It is fully described on a future page.

VIII. Ulceration and Bleeding of the Navel.

When the navel cord falls off, the trifling excoriation (it can scarcely be called a wound) that is left, speedily heals up, and the navel becomes more drawn inwards day by day. This is the usual and natural course of events (see p. 211).

But it occasionally happens when the navel cord falls off, that this process of healing does not go on favourably, and that the part looks inflamed and angry; ulceration commences with discharge of matter, and, if this state of things be not speedily checked, bleeding from the navel will soon follow.

Fortunately this accident is rare, for the bleeding is as difficult to control as it is alarming. The blood does not escape in a gush, but continually *oozes* away. If it is sponged away, it is usually seen to be issuing from a little red growth in the wound, not so large as a pea. Considering the tender age of the patient, it is obvious that if this is not very soon stopped, a fatal result will ensue.

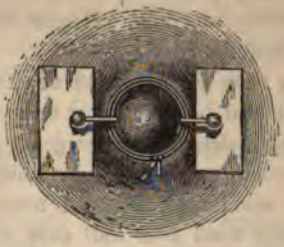
Treatment.—(1) Of the merely inflamed and ulcerated condition.—In the absence of medical attendance wash the sore clean of all discharge by a little stream of water, then let it be *very* lightly dusted over with finely powdered sulphate of copper (blue stone), and over this apply a dressing of zinc ointment, kept in position with a strip of sticking-

plaster. If, on renewing the dressing, it should be found to have stuck, do not let the slightest force be used in getting it off, but bathe the part with warm water till it is quite loose; if any pull is made upon the rag, a great risk is run of causing bleeding. Repeat this process until it shows signs of healing.

(2) Of bleeding from the navel.—I need scarcely say that a medical man should be sent for at once; but, if for any reason his coming is delayed, the exigency of the case will not admit of idleness meantime; something must be done *at once*. All the usual remedies and means for stopping bleeding have been tried over and over again, and have generally failed. First of all, remove all bandages and gently wipe away the blood with a sponge; then apply a pad of cotton-wool saturated with the tincture of perchloride of iron, and keep up *firm* pressure upon it with the fingers. If after a time this appears to have restrained the bleeding, do not remove it, but keep it in position by a bandage rolled round the body. If, on the other hand, the bleeding continues unchecked, once more wipe the wound clean, and try to find out the exact spot (usually a mere point) from which the blood is oozing. Having found it, apply the point of a stick of lunar caustic to it. This will sometimes have the desired effect. More often, however, these remedies fail, and the case becomes extremely serious.

The last resource, which should be employed only by the doctor (and if the state of the baby will permit it), is this:—A fine needle, with a little head of sealing wax, should be entered close to the navel on one side of it, passed beneath it, and brought out at a similar point on the other side of it. Around and beneath the projecting ends of the needle, and embracing the navel and a very small portion of skin around it, one or two threads of stout silk (knotted together at each end to form one ligature) should be tied *as tightly as possible*. Then the sharp point of the needle should be snipped off with strong scissors, and the cut end

should be capped with a sealing-wax head to prevent injury to the skin of the child. A small piece of sticking-plaster fixed on the skin, under each end of the needle, will make sure of no injury being inflicted. When applied, the appearance is somewhat thus :—



This method nearly always succeeds by strangling the bleeding vessel. In a period varying from 7 to 14 days, the ligature will come away of itself, carrying with it the portion of strangled skin. The needle loosens and drops out usually at the same time. The cure is then complete ; but firm support in the shape of a bandage or belt, constantly worn, is required for some time afterwards.

IX. Flatulence, or Wind.

It may seem a small matter to a casual observer that a child should "have the wind," but it is by no means so, either to the suffering infant or to the mother, who is worn out by sleepless nights and tiring days, spent in vainly endeavouring to assuage her baby's pain.

This is perhaps the commonest of all infantile maladies ; a child may fortunately escape many things, but it will not altogether escape the pains of flatulence.

Symptoms.—If an infant who is suffering and crying from flatulence be offered the breast or the bottle, he will probably take it for an instant and then leave go to cry violently again. Then for a few moments he will cease, only to begin once more with renewed anguish. The stomach will be distended and hard ; he is very likely to be troubled at

the same time by sickness, vomiting masses of undigested curd, or he may have loose or greenish and unnatural motions. If he is able to expel the flatus (or wind) to any extent, he seems for the time to gain relief.

Causes.—Flatulence is only one symptom of a special disorder, and that disorder is indigestion. In the infant it is caused either by the stomach being loaded with more milk than it can digest, or more often by the quality of the milk being unwholesome; or the milk may be good, but the child may be feeble and have an unusually weak stomach. But the result is the same in any case: an excess of acid is produced in the stomach and bowels, and a quantity of gas is evolved from the imperfectly digested food, which painfully distends them.

If the child is being fed on cow's milk, this should be examined (in the manner described on page 40) to see if it is acid or not,—for it often is.

Treatment.—If a child is allowed to take more milk than it can deal with, the stomach generally relieves itself in an extremely simple way—by throwing up the surplus, uncurdled, and as it was swallowed; and at once the child becomes happy and comfortable, and ready to begin again. But if this fortunate facility of vomiting should fail to relieve the over-loaded stomach, greater care must be exercised and the supply of milk must be limited.

In a case where the milk, whether from breast or bottle, has disagreed with the infant, it is not of much avail to use palliative treatment while the cause remains. If the child is suckling, the health, diet, and digestion of the mother or wet-nurse must be carefully looked to. There are many articles of diet, which are for the most part known and avoided by nursing mothers, that are very liable to cause derangement of stomach and flatulence in infants. Indigestion in the mother is almost certainly reflected on to the

child at the breast. The presence of wasting disease will so affect the milk that it will disagree with the infant, and only be productive of pain and mal-nutrition.

But it may so happen that none of these causes exist, and that nevertheless the milk persistently makes the child ill, causing painful flatulence. The only thing then to be done is to change the breast of milk,—i. e., to hire a wet-nurse or to change the one already in attendance, or to endeavour to bring the child up by hand.

If the little sufferer is one who is being reared on the bottle, the character of the milk used must be carefully inquired into. Perhaps it is not pure; perhaps it is not fresh; possibly it is acid*; possibly it is used without sufficient dilution with water; it may be that the kind of sugar added to sweeten it disagrees with the infant, or that the bottle used is not kept sufficiently clean and sweet.

It will, however, very seldom be found that a bottle of milk prepared in the manner described on page 25, causes any indigestion and pain.

But while the cause of the malady is being removed, and the diet is being rectified, the poor infant is suffering; therefore I must say a word or two on merely palliative measures.

A child, then, that is crying with "the wind," will receive great relief by the application of a warm bran or linseed poultice to the stomach; or if he is put into a warm bath up to his chest, he will probably expel a good deal of "wind" whilst there, and obtain immediate relief. A nurse will often be seen to place a baby thus afflicted, on its stomach across her knee, and slowly jog it up and down, meanwhile patting it on the back. The position is a good one, and if she lets it lie with its stomach resting on a pad of hot flannel, or an

* And sometimes, though the milk may be good, yet it is necessary to change the cow; so much may the milk from different cows vary. —H. S.

india-rubber foot-warmer filled with warm water, the jolting and patting may be well dispensed with. The best internal remedy to give is a little bicarbonate of soda or potash, or lime-water, or magnesia, with syrup of ginger and peppermint-water. (See Prescr. 53.)

X. Mother's Marks, or Nævus.

These marks upon the body, with which some infants are born into the world, have been popularly, and without a shadow of reason, ascribed to impressions made upon the mother — frights, "longings," and the like,—during the time of pregnancy; and hence have received the name of "mother's marks." There appears, on the fullest evidence, to be no more reason for attributing their origin to this cause, than for supposing that hare lip, cleft palate, an extra finger or toe, or any other malformations, thus arise.

There are two kinds of nævus or "mother's mark," and instances of either kind may vary in size from a large and disfiguring patch or growth, to an insignificant little red spot.

The first kind takes the form of a deep red or purplish stain (called by some "a port-wine stain"), a well-defined patch, usually covering a large portion of the head, face, or neck, though it may occur elsewhere. It does not show any disposition to spread. Nothing can be done for this, if of any size; or even if ever, certainly not in infancy or childhood. When her doctor has told her (as he will do) that nothing can be done, let no mother, in despair at her child's disfigured appearance, allow any trial of the nostrums and so-called cures of quacks and ignorant and reckless persons,—or she will assuredly regret it.

The second kind shows as a deep red and raised growth in the skin, usually of quite a small size at birth, perhaps no larger than a pea, and consists—as also does the other

variety—of a close network of enlarged blood vessels, the skin appearing a little coarser over it.

I mention this class of "mother's marks" in this place, because, though at first they are very small, they are extremely liable to grow and spread, and will *sometimes* assume an unsightly and even dangerous size. Therefore on discovering a mark of this kind on her child, the mother should at once show it to her medical attendant and ask him to do what he considers best in the case.

They are very easily dealt with when small, but often give a great deal of trouble when they have grown large.

An opportunity offers for the extirpation of a small nævus, when the time for vaccination has arrived. If vaccination is performed on the nævus and takes well, the mark will be thereafter obliterated. This subject will be more fully treated of in a future section devoted to its consideration.

CHAPTER VII.

ON VACCINATION.

THERE was never any discovery made that tended so directly to the saving of vast numbers of human lives, year by year, as that of Dr. Edward Jenner, the Gloucestershire surgeon, when he conclusively proved that to have had the cow-pox was an almost unfailing antidote against the loathsome and deadly small-pox.

The pratice of this discovery is vaccination. We permit the trifling disease of *cow-pox* wilfully to be communicated to our children, in order to annihilate or lessen the chance of their falling under the destructive plague that once was the scourge of Europe; and that we do so most wisely, continually accumulating facts go abundantly to prove.

The Protective Power of Vaccination.—To use Dr. Jenner's own words,—"duly and efficiently performed, it will protect the constitution against subsequent attacks of small-pox as much as that disease itself will. I never expected it would do more; and it will not, I believe, do less." The statistics that are available to prove the universal and wide-spread power of vaccination as a protective against small-pox, among all nations and in all countries where it has been practised, are so voluminous that I must be content to place before my readers such statements as are most broad and general: and it is necessary that I should do this, inasmuch as from time to time ignorant people, from a love

of notoriety or for their own selfish ends, try and stir up the prejudices of the uneducated against this most valuable safeguard.

In those countries in which vaccination has been most assiduously carried out,—and (to our shame be it said) England is not one of those countries,—the average death rate from small-pox is scarcely one-fifteenth of what it was prior to the introduction of vaccination.

Compare the figures in the two columns of the following table:—

AVERAGE ANNUAL DEATH RATE FROM SMALL POX IN EVERY MILLION OF POPULATION.

Country.	Before vaccination was introduced.	Since vaccination was introduced.	Years.
Sweden . . .	2,050	158	1810—50
Westphalia . . .	2,643	114	1816—50
Bohemia, Moravia, and Austrian Silesia	4,000	200	
Copenhagen . .	3,128	286	
Berlin	3,422	176	
England and Wales .	3,000	202	1854—65

We may go even farther than this: Dr. Wm. Farr and Dr. Greenhow have shown that *the general death rates from other diseases*, especially those from scrofulous diseases, have considerably diminished since vaccination became more universal.

The next Table, from Dr. Seaton,* is interesting, not only because it shows the preventive power of vaccination, but because it makes evident that the greater the facilities given to the population by Government, for availing themselves of the benefit of it, and the more *obligatory* it is made by Act

* Article on Vaccination in Dr. Reynold's System of Medicine.

of Parliament, the greater is the number of lives annually saved.

Periods compared.	Annual deaths by small-pox in England and Wales.	Annual death-rate per million of the population.
1. Average of thirty years previous to introduction of vaccination; estimated by Dr. Lettsom and Sir Gilbert Blane . . .	—	3,000
2. Average of three years (1838—40) when vaccination had become to a great extent diffused, but before any public provision was made for its gratuitous performance	11,944	770
3. Average of nine of the years (1841—53) when public vaccination was gratuitously provided, but vaccination was not obligatory	5,221	304
4. Average of twelve years (1854—65) during which vaccination has been to a certain extent obligatory	3,967	202

If such be the protective power of vaccination, how comes it, we may well ask, that such epidemics as that of 1871 still rage occasionally amongst us,—that small-pox is seldom absent for long together from the large towns, or that it is not obliterated altogether from the list of known diseases? Simply because the disease, lurking about in pestiferous places, finds so large a proportion of the population either only partially, or *not at all*, protected by vaccination. Inquiries made (1860-64) by certain physicians appointed by Government, resulted in the discovery that *more than* 13 *children in every* 100 *were altogether unvaccinated.* Four out of five of those who die of small-pox, humanly speaking, need not so die; their deaths are the result of

neglect of vaccination; carelessness and ignorance are their murderers.

I dwell on this subject at some length, since I feel (in common with all medical men) that this plague will never be stayed until more enlightenment on the point prevails among the community in general, and among mothers of families in particular. We must either have education on this matter, that will encourage all to avail themselves gladly of the boon, and that will dispel prejudice; or we must have legal coercion; and how much better is the former than the latter!

The Modifying Power of Vaccination.—We occasionally hear mothers say, "My child was vaccinated at three months, but when he was ten years old he had the small-pox all the same." Very possibly! but there are two questions that we should like to ask. Did his vaccination take well in at least three places? and if it did, was he not affected by the disease in so mild a form that he scarcely needed to go to bed on account of it, and was well again in a few days?

Cases of small-pox after vaccination are not by any means unknown, and *may* occur even at some long interval after efficient vaccination; but the disease is so affected by its influence, that it seems scarcely to be small-pox itself, but only *to resemble it*, so mild and usually harmless is it in its course. Again, it is extremely rare for death from small-pox to occur in childhood, in the case of one who was vaccinated in infancy, and on whose arm even one place only rose.

During the observations of thirty years in the Small-Pox Hospital, Mr. Marson found that in every 100 patients who had been vaccinated (and most of them inefficiently vaccinated), only six died; while the unvaccinated perished at the rate of 35 in every hundred. So powerful is the vaccine virus in its antagonism to small-pox poison, that it will posi-

tively oust the latter even after it has obtained a lodgment in the body. Suppose a child takes the infection of small-pox on the first day of the month; if he is vaccinated on the second or even on the third, the development of the small-pox will be prevented; if vaccination is not performed until the fourth, the small-pox will ultimately show itself, but it will be modified; but if it is not done before the fifth, it will be useless, since the vaccination will not have time to arrive at the point at which it confers safety before the small-pox appears.

The Dependence of the Influence of Vaccination on its Efficient Performance.—Insufficient and carelessly performed vaccination is undoubtedly better than none, in one sense; but it is bad in every other, especially as it tends to give an assurance of safety, when there is no safety.

In the inquiries before alluded to, the physicians employed, after having examined the arms of nearly half a million children, stated—that not more than one child in eight was so vaccinated as to be *entirely* protected; not more than one in three was *well* protected; while in more than one in four the vaccination was of a very imperfect character.

TABLE SHOWING THE VALUE OF SUFFICIENT VACCINATION.

Classification of children examined.	Proportion marked with small-pox in every 1000 children, in each class respectively.	
1. Having no vaccine marks	360	
2. Vaccinated :		
(*a*) Having one vaccine mark	—	6·80
(*b*) Having two vaccine marks	—	2·49
(*c*) Having three vaccine marks	—	1·42
(*d*) Having four or more vaccine marks	—	0·67

During the epidemic of small-pox in London in 1863, Dr. Seaton and Dr. Buchanan examined more than 50,000

children. Out of every 1000 children without any mark of vaccination, they found that 360 were scarred by small-pox; while out of every 1000 children showing more or less trace of vaccination, not so much as two were thus scarred. They further arrived at the results embodied in the Table * on the preceding page, which strikingly show the value of *amount*, as well as quality of vaccination.

It often happens when an infant is first vaccinated, that only one or two of the places take; the doctor will then probably propose to vaccinate the child again at once, or he will request the mother to bring the child to him again for re-vaccination in a few months' time, or in a year or two, as the case may be. But the parents very frequently fail to comply with this request, either from forgetfulness or indolence, or because they think it is a matter of no importance. But it is a matter of *great* importance; and the parents, as the guardians of their child's life and interests, should never rest or consider the thing as done with, until four or more good vaccine vesicles have arisen on his arm; or until their medical attendant assures them that the child enjoys the utmost amount of protection that vaccination can give him.

The Objections against Vaccination.—Notwithstanding the immense obligation under which we all lie to vaccination, there are still some few to be found among the upper classes, and a great many among the lower orders, who regard it with suspicion and dislike. This is either the result of prejudice, an imperfect knowledge or misapprehension of facts, or of hasty generalisation. By those who question or deny the safety of vaccination, it is either hinted or roundly asserted, that vaccination communicates, and even originates, scrofulous and skin diseases, and is capable of transmitting a more impure and painful malady still. The universal opinion of the medical profession has decided,

* From the article by Dr. Seaton previously quoted.

after full investigation, that these fears and allegations are groundless; *vaccination, carefully performed, will neither originate nor communicate any of these diseases.*

A mother, whose experience of the effects of vaccination is limited to her own family and the families of her circle of intimate friends, is certainly in no position to form an opinion on the matter, compared with an educated medical man, with all necessary medical knowledge and enormous opportunities of observation. Let us then hear the testimony of a few of those whose experience has been greatest.

Dr. Seaton says:—"Parental complaints that disease has been set up in this way" (by vaccination) "are not infrequent; but . . . though I have carefully investigated a great number of them, I have never yet, in a *single instance*, found that the child from whom the lymph" (or matter) "was taken, was suffering from the disease it was said to have imparted."

Mr. Marson, during thirty years' experience at the Small-Pox Hospital, and in the performance of more than 50,000 vaccinations, "has never seen other diseases communicated with the vaccine disease, nor does he believe in the popular reports that they are so communicated."

"*Sir William Jenner* stated some years ago, that at University College Hospital and at the Hospital for Sick Children he had had in six years more than 13,000 sick adults and children under observation, and that in no case had he reason to believe, or even to suspect, that any constitutional taint had been conveyed from one person to another by vaccination."

Dr. West's experience, founded on observation of 2,600 infants and children, is to the same effect.

Sir James Paget, in speaking of some of the causes which bring out skin eruptions in children, says, "Now vaccination may do, though I believe *it very rarely does*, what these several accidents may do; namely, by disturbing for a time

the general health, it may give opportunity for the external manifestation of some constitutional affection, which, but for it, might have remained rather longer latent. This is *the worst thing* that can, with any show of reason, be charged against vaccination; even this can very seldom be charged with truth."*

Parents are extremely unwilling to charge any malady to their child's own constitution, or to injudicious management on their own part, and vaccination has been made the scapegoat which loaded with the sins, ignorance, and misfortunes of others, is frequently driven out into the desert of infatuated prejudice. Doctors are accustomed to hear parents say, "My child never had the slightest spot or breaking-out upon him before; therefore it must be the vaccination." This does not by any means follow, because very many cases occur, where, if no better reason than this is required, disorders and eruptions might with equal justice be ascribed to the *christening*.

It must be remembered that vaccination is usually performed when the child is three months old; and that not *very* long after this, comes a time when the system is apt to be troubled by the numerous derangements incident to incipient teething. Eruptions may be developed on the skin; disorders may occur in the stomach and bowels; nay even, under the irritation of difficult teething, the symptoms of scrofulous disease that were slumbering in the system may be aroused to activity. And it is thus, and *only thus*, that vaccination can ever be said to have any bad influence; by causing such irritation of the system and feverish disturbance in some few sensitive subjects, that they are thereby rendered more liable to take on disease of various kinds. This is very rare, but it *may* occur.

* These quotations are mostly from "Papers relating to the History and Practice of Vaccination."

Notwithstanding all this, every medical man considers it his duty to exercise the greatest care in the selection of children from whom to vaccinate others, so that not even the *possibility* of harm may occur. He also exercises judgment in advising the mothers of such infants as have arrived at the time specified for vaccination, but who are not in good health, to postpone the operation until their health is fully restored. Unless some special risk is being incurred by delay, no child who is suffering from any skin eruption, or from chafing of the skin behind the ears or elsewhere, should be vaccinated, until everything of this kind is cleared away.

The Mode of Vaccination.—Nearly every medical man has his own favourite method of performing this simple operation, according as he finds one way or another to succeed best in his own hands.

The Operation of Vaccination.—To a looker-on this seems the simplest and easiest thing in the world to do. But it is one of those simple things which can only be done well and effectively after a good deal of practice; therefore, none who can get a doctor to do it for them should mutilate their child by attempting to operate themselves. But since I have heard of many instances happening in lonely and remote places where a knowledge of how to vaccinate on an emergency would have been eminently useful, I insert here brief instructions, and assure any who may find themselves situated in circumstances *where it becomes necessary*, that they may undertake this trivial operation without fear or misgiving.

The child to be vaccinated should be seated sideways on the knee of its mother or nurse, its left side being toward the operator and its *left* arm entirely bare. If a child is in attendance from whose arm the matter is to be taken, the operator first of all makes a series of tiny pricks in the risen vesicle with a needle, from which the lymph soon begins to issue, taking great care not to draw blood. He then grasps the inner surface of the left arm of his little patient just below the armpit, so as to tighten the skin on its outer surface; then, having dipped the point of his lancet in the issuing lymph, he makes four pairs of scratches in the skin of the upper and outer part of the arm, at intervals of half an inch apart—thus: // // . // // The scratches must only be just deep

enough to draw blood, and if anything more than the merest oozing takes place, it must be wiped away with the finger; then, with the flat of the lancet plaster on more lymph, allow it to dry in, and take care that it is not rubbed off. If matter preserved in hermetically sealed tubes is used, make the scratches as above; then having broken off both ends of the tube, apply the mouth to one end, and blow out the lymph on to the lancet point; then plaster it into the scratches.

It is advisable to do the other arm as well. Where only a very small quantity of lymph can be procured, a half-drop of glycerine may be mixed with it; this will make it go further, and in no way lessen its efficacy.

Vaccination is surest and most likely to take when it is done from arm to arm; therefore it is the mother's own interest to take or send her child to wherever her medical man has secured the attendance of a healthy infant with a "good arm," from which he may vaccinate hers. If arm-to-arm vaccination cannot be managed, the medical man will probably use lymph preserved in little glass tubes; when lymph preserved on bone points or slips of glass is used, the vaccination is not so sure to take as when done by the former methods.

The Time of its performance is not open to much choice, as the Vaccination Act wisely fixes three months as the outside limit, within which all children in good health are to be vaccinated. Since *a quarter* of all the deaths from small-pox in England occur during the first year of infancy, it is evident that the sooner it is done the better, and more especially in large towns. Moreover, if vaccination be much delayed beyond the specified period, it has to be done in the midst of the irritation of teething, which is very undesirable. When a child is unavoidably exposed to the direct contagion of small-pox, it should be borne in mind that *no age is too early* for vaccination. Infants but newly born have sometimes been done, and their lives probably thus saved. A life may be lost by delaying a day.

The Number of Punctures made is not merely a question of

more or less temporary pain to the infant, but should be understood to bear even greater importance than this. It is a painful thing to a mother to see five, six, or even more punctures made in the tender arms of her baby, or to think of the irritation and restlessness that so many places may cause as the week goes on; but she will disregard this, taking comfort in the thought that vaccine marks on the arm are better than small-pox marks on the face. Vaccination, if it is worth doing at all, is worth doing *well.*

It has been proved that the more completely the system is influenced by the vaccine, the more complete is the protection afforded by it against small-pox. It is also found that this influence and protection are only imperfectly gained by causing one or two vesicles to rise on a baby's arm; but that the greater the number of places beyond this (in moderation) that rise, the more perfectly safe will that child henceforth be. The following table by Mr. Simon, Medical Officer to the Privy Council, as the result of observation of 6,000 cases, amply proves this:—

Cases of Small-pox, classified according to number of vaccine marks borne by each patient.	Number of deaths in every 100 cases—in each class respectively.
Unvaccinated.	35
Class I. Said to have been vaccinated, but having *no* mark . . .	23·57
,, II. Having *one* vaccine mark . .	7·73
,, III. Having *two* vaccine marks . .	4·70
,, IV. Having *three* vaccine marks . .	1·95
,, V. Having *four or more* vaccine marks	0·55

Progress of the Vesicle.—If the arm is going to rise, there will be slight redness and elevation over the puncture on the second day. On the fifth day a circular, raised, and whitish vesicle will be formed, depressed in its centre. On the eighth day it is larger, full of lymph, and pearly coloured,

and there is usually an inflamed blush all around it, which begins to fade off about the eleventh day. The vesicle gradually becomes brown, and by the fourteenth day is converted into a dry, brown scab, which falls off about the twenty-first day, leaving the characteristic "vaccine mark."

Whilst the vesicle is shrivelling into a scab, or about the tenth day, it is not uncommon to notice an eruption on the legs and arms of the child,—especially if it be a plethoric (or full-blooded) child. It is seldom of any consequence, and speedily passes away.

Lymph may be taken from the arm at any time from the fifth to the eighth day; after that time it becomes useless.

A mother ought never to refuse to let other children be vaccinated from her own, or to allow lymph to be taken from the arm: the stupid objections that one sometimes hears, that "it is weakening to take it away," that "it will inflame the arm," and that it will lessen the protective influence, are altogether groundless, and have no foundation but in ignorance.

Treatment during Vaccination.—The large majority of children undergo successful vaccination without any symptoms at all of constitutional disturbance; and the amount of disturbance produced is no measure of the effectiveness of the vaccination. Sometimes, as the inflammation of the arm increases, or about the seventh or eighth day, the infant becomes restless and feverish, possibly with slightly disordered bowels. If this is so, one or two doses of some such simple febrifuge mixture as Prescr: 10 will usually assist in restoring health. In some cases a teaspoonful of castor oil is the only interference by medicine required; but (as before stated) most children have no symptoms, and therefore require no medicine. Care should be taken not to injure or rupture the vesicles while they are forming, and the infant should be handled very gently, for

his arm is inflamed and tender. Sometimes, though rarely, the inflammation around the pustule becomes so severe, being attended by deep redness, swelling, and pain, as to call for some alleviation. Fine linen rags applied and kept cold and wet with iced water or with lead lotion (Prescr : 7) are perhaps the best means to use; sometimes a light bread poultice gives more relief than anything else.

Incapability of Vaccination.—There are some few children (and they are rare examples) who cannot be successfully vaccinated, try as often as you will. If, after two or three attempts closely following one another, no success is met with, it is not at once to be assumed, however, that that child is altogether incapable of vaccination. The incapability may be merely temporary. After the lapse of a few months, the mother should cause another trial to be made; and if this likewise fails, the next attempt need not be made until a much longer interval has elapsed. Incapability of "taking" in a strumous weakly child is probably temporary only, but in a healthy and vigorous infant permanent.

The degree of susceptibility to the vaccine disease varies both in different persons, and in the same persons at different times. It is a great comfort that experience has taught us that those who are insusceptible of vaccination are nearly always insusceptible of small-pox also.

Re-vaccination.—This is a question that perhaps more often affects adults than children ; but as it is one that has often to be met, with regard to children between six and fourteen years of age also, it may be as well briefly to review it here.

There can be no doubt that the protective influence of vaccination, unless very thoroughly imparted to the system at first, may sometimes diminish, or even occasionally wear out, as years go on. But if an infant's vaccination has been

thoroughly good at the outset, both as to the number of vesicles produced, the presence of the inflamed ring around them, and the distinctness of the marks left, no further vaccination is usually needed during either infancy or childhood under any circumstances.

Under what circumstances then does re-vaccination become necessary in infants or children?

(1) If the attempt to vaccinate for the first time has altogether failed, re-vaccinate at once.

(2) If the vaccination only partially succeeded, producing perhaps but one vesicle, or but two very imperfect ones, re-vaccinate after allowing an interval of twelve months.

(3) If, although no suspicion has existed that the first vaccination was an insufficient one, the marks become faint and imperfect as childhood advances, re-vaccinate as soon as perceived.

(4) If a case of small-pox occurs in the house or the immediate neighbourhood, or if an epidemic of small-pox is prevailing, re-vaccinate instantly. If, however, the child has four or five vaccine marks, and they are all distinct and well marked, it will be perfectly safe to leave it unmeddled with. It is entirely protected.

(5) It is a safe precaution to adopt, to have all children re-vaccinated when they arrive at that transition period between childhood and youth called puberty.

(6) If a child is brought from a hot climate to a colder one (as, for instance, from India to England), re-vaccinate on arrival.*

* If after vaccination the child has been the subject of some one of the eruptive fevers, its constitution may be so altered, as, to a certain extent, to modify, or even obliterate, the protective influence of vaccination. At all events, such an one should be re-vaccinated; the operation will do no harm, and, if it takes, its necessity will be proved.—H. S.

It should be known that a re-vaccination seldom exerts so thorough and complete an influence over the system as a first vaccination does, when well done. The vesicle and symptoms produced by a vaccination that has taken for the second time, are altogether unlike those following a primary vaccination.

The following fact, taken by itself, speaks volumes as to the perfect security conferred by efficient re-vaccination. "For just upon thirty years," says Mr. Marson, "we have re-vaccinated all the nurses and servants, who had not had small-pox, on their coming to live at the Small-Pox Hospital, and *not one of them has contracted small-pox during their stay there.*"

"One thoroughly good primary vaccination to start with, and one careful re-vaccination after puberty, so conducted as to give evidence that the lymph was absorbed, are all that is necessary for the complete protection of the population against small-pox. No doubt, by the first vaccination nine out of ten are perfectly well and permanently protected; but who can say of any individual whether he is one of the nine, or the exceptional one?" (Dr. Seaton.)

CHAPTER VIII.

ON TEETHING.

EVERY child is provided, sooner or later, with two sets of teeth; the first set, or the temporary or milk teeth, are twenty in number; the second set of permanent teeth consists of thirty-two, and these make their appearance as the former are shed.

It is chiefly with the cutting of the temporary teeth that we have now to do, since their appearance and development form the most important period of infancy; one that is often full of danger, and that demands the mother's constant watchfulness. It is a subject on which every parent should have some amount of accurate knowledge. The eruption of the permanent teeth is usually effected with very little disturbance of the general health, and occurs at a time when the system is less delicate and susceptible; it is, therefore, altogether secondary in importance to the critical process that has been termed teething *par excellence*.

Teething is not a disease any more than the growing of a child's bones is a disease, though it is often spoken of as if it was; but it is frequently surrounded by consequences and disordered conditions of health, which are reliable indications of the state of the child's constitution, and which should be carefully noted by the mother.

Symptoms of Teething.—If the inside of the mouth is examined, the gums are found red and swollen; sometimes the swelling is very considerable, and attended obviously by a great deal of pain; the poor child cries in-

cessantly, and no explanation for its crying can be found but this. A great deal of saliva is secreted and runs out of the mouth,—in fact, the child "dribbles." We are also accustomed to see babies keeping their mouths open and digging their fists into them, as if to show where they are in pain; and not their fists only, but every hard object they can seize, with which to rub their irritated gums. Then again, their sleep is disturbed and fitful, and they suffer from a sort of irregular feverishness, which comes and goes in an unexplainable manner. Nothing will pacify their fretfulness; the breast fails to soothe them; for often they will not take it, or, if they do so, let it go again almost directly with renewed screaming. If a baby of from six to eight months old suffers from these symptoms, conclusive evidence is afforded that that baby "is about its teeth."

The Order of Appearance of the Temporary Teeth.—All the teeth are contained within the jaws when the infant is born,—nay more, the germs of them are there as early as the third month of life within the womb,*—but they remain quiescent until the time has come for them to appear, when they begin to show themselves above the gum, usually in a definite order and at more or less fixed times.

Supposing teething to commence at seven months, the order and times of appearance of the temporary teeth are very much as follows:—

The two middle cutting teeth (or central incisors) of the lower jaw . . .	Seven months.
The corresponding teeth in the upper jaw	Seven and a half months, or later.
The two side cutting teeth (or lateral incisors) of the upper jaw	Nine months.
The corresponding teeth of the lower jaw	Nine and a half months.

* Some children are even born with a few teeth already cut.—H. S.

First grinding tooth (or molar) on each side of the under jaw	Twelve or thirteen months.
The corresponding teeth of the upper jaw	Fourteen months.
The "eye teeth" (or canines)—two in each jaw—appear	Between the sixteenth and twentieth months.
The second grinding tooth (or molar) on each side in both jaws	Between the twentieth and thirtieth months, or later.

Thus we see that, during a period of twenty-three months, children are exposed to all the disorders incident to this critical time. But it must not be supposed that there is no cessation of the irritation of teething during all this time. There is a distinct pause in the process several times, during which the child entirely loses any teething symptoms it may have suffered from: there is a pause between the cutting of the lower and upper middle incisors, again between the lower side cutting teeth and the first grinding teeth; again, between these latter and the "eye-teeth;" and lastly, a long one between the "eye-teeth" and the second grinding teeth.

The time and rapidity of the appearance of the teeth is often influenced by some peculiarity of the child's constitution: thus, in a rickety child they appear late (often as late as the eighteenth or even the twenty-fourth month); and the process, when begun, goes on slowly. In a strumous child, the contrary is very usually the case; they may appear as early as the fourth or fifth month, and they are all cut very rapidly. Therefore, it is not always matter for maternal pride that her infant should be so far in advance of others in its teething.

The Disorders of the First Teething.—An infant, if in sound health and *well managed*, may cut its teeth with such ease that the mother would scarcely suspect that the process was going on; or, on the other hand, if of an irritable constitution or if *badly managed*, teething may be only

accomplished with so much difficulty, that life is placed in serious danger. Between these two extremes are many degrees of disturbed health, varying according to the disorders (caused by the irritation set up) that present themselves.

The following are the principal maladies that complicate teething. If a mother is forewarned of them, she will often be fore-armed.

Convulsions.—This formidable and alarming malady is very often indeed occasioned by the irritation of teething; more especially if the child who is attacked by it has been badly managed with regard to his diet. It will be found fully treated of on a future page.

Diarrhœa.—This, which is perhaps the commonest disorder of dentition, may vary from mere looseness of the bowels to excessive purging. The former is rather salutary than otherwise; the latter is most dangerous. Diarrhœa produced by teething is usually attended by greater pain, feverishness, and thirst than ordinary diarrhœa, and seems less easily controlled by treatment. The liability of it to occur during teething is one strong reason why no change should be made, if possible, at this time, in the child's diet, —unless it was previously faulty, when it should be at once rectified. Diarrhœa will be found to be fully treated of on a future page.

Bronchitis.—Just as the irritation of teething may cause congestion in the mucous membrane lining the bowels, thereby producing diarrhœa, so it may cause congestion of the mucous membrane lining the tubes and cells of the lungs, and produce bronchitis. Bronchitis thus caused is also more intractable than when arising otherwise; probably on account of the fact that the cause remains,—the irritation of the upward pressing tooth is still there,—and it is useless to attempt to cure a disease, whilst the cause of it is still in

full force. Bearing this in mind, one is not surprised to find that an attack of bronchitis is suddenly cut short by the tooth piercing the gum. The same is true of most of the disorders that we are now considering. Bronchitis is treated of at length in a future chapter.

Skin Eruptions.—These, as everyone knows, are a very common source of anxiety to inexperienced mothers during the period of teething. They mostly occur in the form of outbreaks of little vesicles filled with clear fluid, which gradually dry up and rub off in scales like bran (eczema); or of pustules containing matter, that form scabs (impetigo). Either form is accompanied with more or less redness of the surrounding skin. The head and face is the favourite locality. I do not enter into the subject of these eruptions here, except to say, that when they undoubtedly are dependent on teething, they should be let alone. For once, an old prejudice is found to have truth in it, and there certainly are some grounds for supposing that *in certain cases* the appearance of these eruptions in teething-time is rather beneficial than otherwise. It is quite possible to cure them; but it is more than possible that, being cured, convulsions or some disorder far more serious than a "tooth-rash" will very shortly break out.

These remarks, of course, do not apply in a case where an eruption existed *before* the irritation of teething commenced; *this* may and ought to be treated with a view to cure.

These skin eruptions will be more fully described in the chapter devoted to that subject.

Inflammation of the Gums.—This is to be distinguished from "inflammation of the mouth," to be described hereafter. It sometimes happens in a case of difficult teething, if the mouth is examined, that the gums are found to be extremely hot, red, swollen, and tender, especially over some particular upcoming tooth, where the swollen gum forms

quite a little tumour. The inside of the mouth and the tongue probably have white thrush-like spots scattered over them,—little unhealthy ulcers form on the top of the gum, and around the point of any tooth that may have cut through it. This condition is usually preceded and attended by very considerable feverishness and constitutional disturbance.

Treatment.—The diet must be most carefully attended to; it should be rather low than otherwise, and should consist of milk only. The bowels must be kept acting, at least twice a day. The head must be kept cool, and may be sponged with cold water from time to time. A lotion of borax (Prescr: 8) gives great relief, applied freely to the parts affected, with a large, soft camel's hair paint-brush; and the chlorate of potash, which acts most beneficially in these cases, may be given as prescribed (Prescr: 9), if medical attendance cannot be procured. Dr. West recommends the application of a leech externally, if the inflammation runs very high.

Other Occasional Disorders.—In the general excitability of the system produced by teething, *inflammatory diseases*, especially of the brain, are more liable to arise than at another time. Frequently a child may suffer from great pain in passing water, evidenced by his cries and screams; or he may seem to have lost the power of retaining it, and it dribbles constantly away: the former is almost instantly relieved by a hot bath; the latter is very difficult to remedy by any means.

Discharges from the ears, and inflammation and *gathering of the glands of the neck*, occurring very commonly at this time, are ascribed, probably with reason, to the irritation of teething.

Management during Teething.—The majority of the disorders that accompany teething are the result of bad

management: children are either overfed, which induces full-bloodedness; or they are improperly fed, which causes irritation; or their heads are kept too warm, or their bowels are suffered to become confined. I do not say that even *good* management will altogether put an end to the evils incidental to teething-time. but *I do say* that it will diminish them by one-half.

The diet should consist altogether of milk, whether from the breast or the bottle, in the case of infants under eight months; and the staple of it should still be milk in that of teething children above this age (as directed in the chapter on Food). No alteration ought to be made in diet in the midst of the irritation of dentition; but if any change should be rendered necessary by circumstances, advantage should be taken of one of those pauses in the process, that have been mentioned, to make it. At this time the infant is very likely, from the heat of the mouth, to seek relief in constant sucking: if it is given the breast or the bottle each time it seems to want it, its stomach will become overloaded and deranged; therefore, let it have some barley-water to fall back upon, which will cool the mouth and require no digestion. During this period babies *will* have something to put into their mouths wherewith to rub and squeeze their irritable gums; and if a suitable object is not provided for them, they will seize upon an unsuitable one. Therefore, let them have something adapted to their wants, and which they cannot poke into their eyes or nose with any ill result,—a flat ivory ring, an india-rubber ring, or possibly Maw's patent teething-pad.

The head must be kept cool, and cold sponging it from time to time will do great good. If the weather at all admits, the child should be a good deal in the open air; and when he is kept in, the nursery must never be allowed to get close and hot. The proper action of the bowels must be

carefully attended to; they ought to act freely two or three times a day, according to the age of the child and its habit at ordinary times. One of the laxatives specified and recommended on page 161 may be used as there directed, if there is constipation at any time. If much feverishness should arise, some simple febrifuge mixture (such as Prescr: 10) may be useful; and if the heat of skin is very great, the tepid bath will do good.

Since some mothers are unnecessarily anxious to have the gums lanced when their babies are teething, while others have an equally uncalled-for aversion to the operation, it is evident that information on the subject is wanted, on which to form a true opinion.

Lancing of the gums, though in many cases a very valuable remedy, is not nearly so often required or beneficial, as is generally supposed. Whenever a medical man proposes to lance an infant's gums, the mother is acting very unwisely if she offers any objection. He is very likely to propose doing so under the following circumstances—

(1) If a tooth is so nearly through that it will certainly pierce the gum in a day or two at the latest;

(2) If the poorliness and disturbance of the system, often occasioned by teething, continues for a long time, although the painful and swollen gum remains just the same and the tooth gets no nearer to the surface;

(3) In cases where the approach of each tooth has been observed to be attended by the onset of diarrhœa, bronchial cough, or fever, which has ceased on its piercing the gum;

(4) In cases of sudden convulsion occurring while a child is *actively* teething, and which can be referred to no other cause, even though the approaching tooth (or teeth) be not very near the surface. No good, however, would be done by lancing the gums in convulsions, during one of those pauses in the process of teething that I have already mentioned.

(5) If the gums are red, swollen, hot and painful, even when no tooth is pressing upon them. But in this case they are only lanced to make them bleed, and thus to gain relief,—not to free the tooth; and the lancing may perhaps have to be repeated two or three times; therefore the mother must not expect the tooth shortly to appear after the lancing, but she *may* expect her baby to get relief to the pain in its mouth.

In all the above cases (and probably in very few others) will lancing of the gums be of real service; a great deal of rest and ease will be gained by a very short moment of trifling pain.

For the benefit of those who are out of reach of medical aid, I will state the method of lancing the gums. A knowledge of *how* to do it, and *when* to do it, may possibly, in critical moments, be the means of saving life. *How* to do it, is simple enough. Place the forefinger and thumb of the left hand (or the two first fingers) on each side of the gum to protect surrounding parts; then—if it is for a front tooth—make a cut along the gum over the line of the cutting edge of the tooth; cut down firmly till the edge of the instrument used is felt to touch upon the tooth. If you lance the gum for a double tooth, you must make two cross-cuts, thus ×, carried right down to the summit of the advancing tooth.

NOTE.

The descriptions of disease which occur on all following pages are only intended as mere sketches, correct in outline but unfilled up by detail. The limits of this work do not allow of more, nor does its purpose require it. The information is quite full enough, not *to enable the mother to undertake the medical care of her children herself, but to apprise her of the nature of her child's disorder, and to arm her with salutary knowledge in case of emergency. The paragraphs on "Treatment" are inserted only for the benefit of those who are out of reach of medical aid. The various items of treatment recommended are often merely* makeshifts ; *for it is impossible to impart full and accurate medical knowledge to any but those who are medically educated ; and it is undesirable and dangerous to put sharp-edged tools into the hands of those who are incapable of using them aright.*

PART III.

DIVISION I.—ON FEVERS.

CHAPTER I.

ON ISOLATION OF THE PATIENT AND ON DISINFECTION.

Some diseases are infectious, some are contagious only, and some are both infectious and contagious. A contagious disease is one where actual *contact* with the sick is requisite to propagate the disease; an infectious disease gives off its poison into the surrounding air and on to surrounding objects, and actual contact with the sick is not necessary to the taking of the malady. The line between these two conditions, however, is not very sharply defined; and the two terms are often loosely used one for the other.

Infection is communicated chiefly by the following,—the Breath, the Secretions, and Excretions (such as the perspiration, the urine, the evacuations from the bowels, the expectorations and the saliva), the Skin of the body (especially the dead scales and powder of skin that peel off and stick to clothes and float about the air), the Hair, the Body Clothes, the Bed Clothes, and the walls, carpets and furniture of the room.

If the sick child could be *perfectly* separated from the others, and if *all* these items could be disinfected from first to last and kept *always* disinfected, the disease could not

possibly spread to other members of the family. But the difficulty lies in keeping up that rigorous and watchful care that guards *every* outlet of infection. You may stop up ten out of the eleven sources mentioned above, with disinfectants, but the eleventh escapes unnoticed, and the mischief is done and your care is vain. Perfect disinfection is a sure means of safety; but even partial disinfection is infinitely to be preferred to none at all.

Directly an infectious disease breaks out in a house, the patient is to be completely isolated.

I. Select a room if possible at the top of the house, but at any rate one *by* which very few *need* pass, and *through* which no one *can* pass. It must have a window that will open wide at the top, and a fire-place with a chimney that does not smoke; and it should not be too small. If an adjoining room can be set apart for the nurse and mother to cook, take their meals and sleep in, so much the better.

II. Remove every article from the rooms that is not *essential* to comfort and convenience, or which cannot be washed, disinfected or burnt. Take up the carpets and take down the curtains and hangings.

III. Nail up over the whole of the outside of the doorway of each room used, a sheet kept constantly wetted with a solution of carbolic acid*; and maintain a constant circulation of *fresh air, the best of all disinfectants.*

IV. Select two persons and no more to attend upon the sick child. They must dress in clothes that will wash, and have no intercourse at all with other members of the household. They must each sleep seven hours out of

* Or with "Sir William Burnett's Disinfecting Fluid" diluted with water; in the proportion of one wineglassful of the fluid, to two and a half quarts of water. The fluid is about 1*s.* a pint. It is poisonous. The proportion of carbolic acid (if this is used) is a wineglassful and a half to a pint of water. Sold in bottles, 1*s.* a pint. Poisonous. Wet the sheet thoroughly.

the twenty-four; and they must each spend one hour in the open air every day. Before leaving the sick room they must wash face and hands with carbolic acid soap and water.

V. Place in some remote part of the sick room a large earthen pan, or ordinary white earthen foot-bath. Fill this half full with carbolic acid * and water, and in it let all dirty linen, napkins, &c., be put to soak for a short time before they leave the room. The solution of carbolic acid (or other disinfectant) should be frequently changed and renewed.

VI. Add some strong solution of carbolic acid, or some chloride of lime, to every evacuation of the bowels or the bladder, immediately it is passed; and likewise to any matter vomited, or to expectorations. It is perhaps even better to keep some disinfectant always in the utensil or basin or pot, ready for use. If the evacuations are to be preserved for the doctor to see, it is best to use a little of the undiluted solution of carbolic acid, as their appearance is not much changed thereby. Anything that is thus preserved for medical inspection, must be kept in the outer room. Napkins containing evacuations, if they are to be kept for inspection, must be folded together and put into a closed pan, holding a quantity of chloride of lime, moistened with water.

All evacuations having been thoroughly disinfected, if not directed to be kept, are immediately to be carried *down stairs* in a closed pail or pan, and emptied; and chloride of lime is to be thrown down afterwards. Do not empty them down the water-closet in the house, if there is another place in the out premises. If the water-closet *is* used for this purpose, it must be tabooed to all members of

* The same strength of solution as is indicated in the footnote on p. 259.

the household so long as the disease lasts. In the country, or where circumstances permit of it, the best way is *to bury* the evacuations in the earth.

VII. Except at such times as the doctor orders it not to be done, the sick child may be sponged all over with carbolic acid soap and water, or with water to which a little *Condy's fluid* has been added, once or twice a day. The water may be warm or cold, according as the doctor thinks best. If the skin is peeling,—as after Scarlet fever,—a little olive oil, containing a tenth or twelfth part of carbolic acid, may be rubbed over the surface after the sponging, and is usually agreeable to the child's feelings and beneficial likewise. If it is possible, the child's mouth is to be washed out with a little Condy's fluid and water two or three times a day, and if there is any discharge from the nose or elsewhere, cleansing with the same mixture is to be performed from time to time. Condy's fluid is not poisonous.

VIII. Shallow plates, two or three in number, filled with undiluted Condy's fluid are to be placed about the room. After standing some time, the fluid becomes of a rusty brown and inert. It should be changed every twelve hours. The atmosphere of the room may be still farther disinfected by freely dispersing through it Condy's fluid with "a spray producer," which can be got for a shilling at any druggist's shop. Saucers full of finely powdered charcoal or of chloride of lime may be used instead of Condy's fluid, if the latter is not at hand.

But it is to be remembered that nothing can supersede the necessity of the free circulation of plenty of fresh, pure air.

Fumigations, pastilles, tobacco-smoke, camphor and other vaunted nostrums have no value whatever as disinfectants; they only make a smell to hide the mischief.

IX. If death should occur, it is to be borne in mind that the body is a source of infection. It should be carefully isolated, and should be kept sprinkled with carbolic acid and water, or with Sir William Burnett's fluid. It should be enclosed in a coffin with the least possible delay.

X. The sick child during convalescence is to have a good bath of warm water with carbolic acid soap, at least twice before mingling again with the rest of the household, subject to the advice of the doctor. Those also who have attended upon the sick should do the same, and should thoroughly wash their hair and change every article of clothing, before entering into intercourse with others.

XI. When the illness is over and the child is removed from the sick-room, everything that has been used or worn by the patient or the attendants, must be either disinfected or burnt. This may be done by one of two or three methods. If the articles will bear boiling, boil them. If they cannot be boiled but will stand baking, bake them in an oven in which a cup containing a little carbolic acid, or finely powdered charcoal stands. If they are not valuable and will bear neither of these processes, burn them.

If none of these methods are used, soak the articles in question first in fresh water, then in the fluid chlorinated soda—a teaspoonful to a pint of water,—and lastly in hot water. All bedding should be picked to pieces, and the feathers or wool subjected to the action of hot air, and then for some time to fresh air out of doors.

XII. The last thing to be done is the disinfection of the sick room itself. Close up the fire-place and every crevice of the windows or doors, with paper and paste. Remove all drapery. Place a dish on the table containing a quarter of a pound of black oxide of manganese, and pour over it half a pint of strong hydrochloric acid (or Spirit of Salt); close up the door and its key-hole effectually, and leave the

room undisturbed for six or eight hours. Chlorine gas is evolved in large quantities and thoroughly disinfects the room, though if anything is left within it that is dyed or coloured with vegetable colours, it is apt to get bleached; and lime-whitened walls or ceilings are made to sweat.* When the chlorine process is over, the floor must be well scrubbed with carbolic acid soap and water, the walls and paint wiped down, and the furniture rubbed: whilst all the time a fire is kept burning in the grate. When all is done, the room may be left tenantless for three weeks or a month.

If all these directions are literally carried out, cases of an infectious disease spreading in a family will become *extremely* rare.

* The same precautions being taken, a dish of sulphur may be ignited with an equally efficient result.

CHAPTER II.

ON SCARLET FEVER AND THE DISORDERS THAT OFTEN FOLLOW IT.

Medical Name.—Scarlatina. Some people suppose "Scarlatina" to signify a milder attack of the disease than is implied by "scarlet fever." This is a mistake, the two terms mean one and the same thing.

Cause.—Contagion or infection.

Varieties.—There are three tolerably distinct varieties; the Simple Scarlet Fever, in which the skin is chiefly affected; the Ordinary Scarlet Fever, in which both skin and throat are affected; and the Malignant Scarlet Fever, in which the throat is chiefly affected.

Is it Infectious?—Very much so indeed; and it is remarkable for the tenacity with which the infection sticks to objects brought within its action, and for the great length of time during which it often clings to them. There is probably no disease that requires such energetic and watchful measures to prevent its spread.

Period of Incubation.—By this term is meant the time, reckoning from the day when the disease was caught, to the day when it begins to show itself, during which it is *hatching* as it were, or developing itself. During this period of hatching or incubation, the child generally appears in his usual health. Each eruptive fever has its own peculiar period for incubation. The period for Scarlatina is usually *from four to six days.*

Symptoms and Progress.—These vary according to

the variety of scarlet fever present. Take an ordinary case of neither the severest nor the mildest type. The attack is often ushered in by vomiting, accompanied by great heat of the skin, by thirst, by rapidity of the pulse,* and by headache or heaviness. There is entire loss of appetite: the limbs ache and the urine is scanty and dark or thick. Sometimes short chills and shivering come on, to be followed again by high fever, and even by deliriousness. Then soreness of the throat and pain in swallowing begins to be urgently complained of, which continue for a time to get worse. If examined, the tonsils are found very red and somewhat swollen, and the whole of the back of the throat tumid and bright red; the tongue at first is coated with a creamy film, which becomes thicker and more sticky on the second and third days, and then begins to clean off from the tip backwards, leaving the tongue smooth, *bright* red and dotted all over with little elevations (less red), like the seeds of strawberries. This is the distinctive "strawberry tongue" of Scarlatina.

Then on the second and third day the rash comes out. It consists of innumerable small dots, or a general blush, of a bright scarlet. Sometimes it comes out over the whole body at once; but much more often over only a part at a time, usually the chest and sides of the neck first. The rash reaches its height on the third or fourth day of the illness, begins to fade on the fourth, fifth, or sixth day, and lasts altogether for a period varying in different cases from five to ten days.

Sore throat is present in almost every case to a greater or less extent; but in favourable cases it disappears as the rash fades, while in very mild cases it has scarcely been felt before it is gone. The disease is dangerous just in propor-

* It often reaches 160 or more on the first day, nor does this necessarily bode any ill result.

tion to the amount of mischief in the throat, and often this is of a very serious and aggravated degree. It may implicate the windpipe and cause death by suffocation (though this is rather rare), or it may go on to fatal mortification.

As the rash fades, the fever gradually abates, the tongue cleans, the throat loses its soreness, the appetite returns, natural sleep is obtained, and the little patient becomes to all appearance well. But a critical process has yet to be passed through. The whole skin now begins to peel off. If the rash has been intense, it comes off in sheets—the entire skin of the hand has often been known to come off in one piece or glove,—if milder, it is detached in scales and branny dust, of which the bed is found constantly full. Until this process is quite finished, the child's progress to health is beset by many dangers; and while it is going on, contagion is most readily communicated.

A case of *Simple Scarlatina* often consists merely of two or three days' feverishness, a uniform crimson blush over the skin, and a transient sore throat; followed however in due time by peeling of the surface.

Malignant Scarlatina is always a most dangerous disease, and more often fatal than not. The symptoms mentioned as ushering in ordinary Scarlet Fever are intensified; convulsions often occur likewise; the rash comes out late (on the 3rd or 4th day), and when it does come out, is scanty and in patches, or dusky and livid in hue. The child is usually very delirious. The tongue soon becomes dry and brown, the teeth and lips become covered with a brownish black incrustation, the breath is very fœtid and the distress in the throat and neck is extreme. The inflammation about the throat and the parts concerned in swallowing passes into mortification, the strength rapidly gives way, the surface becomes cold and clammy, the motions are passed into the bed, and the poor little sufferer lies unconscious and muttering, but

often restlessly picking the bed clothes with his fingers. The stupor deepens, and death mercifully closes the scene.

Distinctions.—The first onset of all fevers is very much alike, and it is difficult to say in the very beginning of some cases, what it is that the child is sickening for. But usually in Scarlatina, a mother has not to wait more than a few hours before symptoms show themselves, which may help her to form an opinion as to what the malady is to be.

There are only two diseases for which scarlet-fever could be mistaken in its onset, and these are measles and diphtheria. The means by which it may be distinguished from either, will be stated in the chapters treating of each respectively.

Prospects of the Case.—*Favourable Symptoms.*—Mildness of the febrile symptoms that usher in the disease;—the early appearance of the rash, not later than the second day;—a plentiful bright and uniform rash;—delay in the coming on of sore throat;—capability of swallowing and absence of swollen glands under the jaw and in the neck. Moreover if there is a decided diminution of the temperature of the body, as marked by the clinical thermometer (p. 151), occurring every morning compared with the temperature of the preceding evening, it is a very favourable symptom.

Unfavourable Symptoms.—Extreme severity of the precursory symptoms;—the occurrence of delirium very early in the disease, or any great degree of it later on;—delay in the appearance of the rash;—thin and copious discharge from the nose;—early or *excessive* soreness of the throat with great difficulty of swallowing;—swelling of the neck or of the glands of the neck;—a dry, swollen and red tongue, or a dry and brown one;—a constant rise in the temperature of the body (ascertained by thermometer), without any diminution occurring towards morning;—and a distended and drum-like condition of the belly.

Very unfavourable Symptoms.—When the disease is ushered in by convulsions, when the rash is dusky and livid, when the vital powers seem crushed from the very first and the disorder is as much like typhus as scarlet-fever, the child very seldom recovers.

Mortality.—Scarlatina is one of the most fatal diseases to children known, and annually carries off a greater number of victims than any other, convulsions and diarrhœa only excepted. In the year 1870 there were in England alone 32,543 deaths from Scarlet Fever. Of this number 20,705 occurred in children under five years old, and 31,204 under fifteen years old. The heaviest mortality was among children in their third year. In the sixteen years 1855 to 1870, this dreadful malady destroyed, in England alone, 195,061 children under five years old, and 291,619 under fifteen; or a population considerably more numerous than that of all Leicestershire.

Nursing.—*During the Fever.*—The first duties of the mother after she has sent for the doctor, and as soon as she is assured that she has to deal with scarlet fever, are to carry out the instructions given in the chapter on Disinfection. She must put the child to bed, no matter how mild the symptoms may bid fair to be. She must not attempt to force food upon the child; draughts of cold milk are quite sufficient at first. Vomiting is relieved by giving little pieces of ice to be swallowed, or drinks of iced water. Ice thus taken is also very soothing to the sore and inflamed throat; and if the child is old enough, he should be taught to allow it to melt in his mouth. The inflamed throat is also very beneficially acted upon by a *succession* of soft hot linseed poultices, kept in position by a handkerchief passed under the chin and tied at the crown of the head. One poultice is not of much use; *several* should be used, one succeeding another every three-quarters of an hour or oftener. If the rash does

not come out early or very fully, a warm bath is very useful in causing it to do so, and in other ways also. The child must be immersed for three or four minutes *up to the neck*, and on taking him out every precaution must be carefully observed to prevent his catching cold, and to obviate sudden alternation of temperature. This measure may be repeated if necessary, but not till after the lapse of some hours. If the fever rises very high and the skin is burning, dry and pungent, tepid sponging may be had recourse to (as directed on pp. 183 and 184), even though the rash be out, without any fear of "driving it in" or doing anything but good.

Except in the mildest cases the sick child will touch nothing but drink. Milk is the best drink, as it is simple and nourishing, and may be taken in any quantity. If the child is past infancy and of a feeble constitution, after the first onset of the fever is past, a little beef-tea or some animal broth may also be given in quantities, and of a strength, suited to the age of the child and the severity of the symptoms. Thin arrowroot and milk is usually liked and is soothing to the throat. The fever drinks, Nos. 24 and 25 in Appendix A, are often grateful and refreshing. Let the Nursing Plan be adopted (see p. 203) if the case be anything but one of the mildest.

If the throat becomes sloughy (*i.e.*, covered with yellowish grey patches), and swallowing very difficult, together with stupor and prostration of strength, great trouble will be experienced in getting nourishment down; but now, if ever, the mother must persist in her efforts, for the child's condition and safety imperatively demand sustenance. Let the nourishment be given in small quantities, at frequent intervals, and concentrated;—very strong beef-tea, or Nos. 16, 17 or 21 (Appendix A), and *port wine*, which is invaluable in all diseases of childhood involving the throat, or milk and brandy, or No. 22 (Appendix A), in such quantity

as the medical attendant may approve. In this condition of the disease, when the vital powers are exhausted and bad symptoms are appearing. nourishment and stimulants are more to be depended on than medicine.

During Recovery.—As the rash fades and the fever abates, the child's appetite and spirits begin to return. But the disease has left his digestion very weak, and it is one chief duty of the mother to see that he does not overtask it, as he most certainly will do, if he is not checked. He must be fed *very simply indeed*, and on the system of "little and often." He must gradually (if old enough) work his way through a diet of beef-tea and broths to fish and fowl, and thence ultimately to meat. Light custard and milk puddings, lightly boiled eggs, cocoa, bread and butter and so forth, may be gradually added to a convalescent child's diet, but whatever is given to him should be nourishing and very digestible. The other chief duty of the mother is most jealously to protect her child from the *slighest exposure to cold.*

It is scarcely possible to take too much care on this point. A temperature that would be perfectly bearable and even comfortable to a healthy child, or a degree of chill inappreciable by ourselves, is often sufficient to bring on the gravest symptoms in one recovering from Scarlatina. As long as the skin is peeling off the body and gradually renewing itself, this sensitiveness of the system to cold continues; the kidneys are disposed at any time upon its application, to become congested, and *dropsy* at once comes on. If this form of dropsy has attacked a child, it becomes white, swollen and puffy, with altered features; whilst its flesh is doughy and leaves "pits" after firm pressure with the finger.

The danger of this formidable malady showing itself, is not over until the new skin has completely replaced the old; or (to express the time more definitely) probably not for a month after the beginning of the illness. Therefore until a

month has elapsed, the child should not be removed from the room; and his going out of doors must be delayed even longer, unless the weather be unusually favourable and warm.

Whilst the skin is scaling off, the mother should anoint the surface all over every day with the best olive oil, to which a very little * carbolic acid has been added.

Treatment.—In the simple form very little medicine is usually needed. If the coming of the doctor is delayed and the fever runs high, Prescr. 11 may be given, and if the bowels require to be acted upon, a laxative draught (Prescr. 12 or 19).

If a doctor's services are not to be had, if there is much sore throat, a drink such as Prescr. 13 is very useful. In the severer forms of sore throat, where there is ulceration and sloughing, the child's tongue must be depressed with the handle of a spoon, and the parts of the throat affected must be washed over with a large sized camel's-hair paint brush dipped in tincture of iron. In some cases, the undiluted solution of chlorinated soda or Condy's fluid seems to answer better for this purpose. This may require to be done once or twice a day for some days, and until the parts get healthier. (N.B.—Do not let the brush be so full that it drips down the throat, thereby setting up a fit of choking cough.) In a case of malignant scarlet fever, or when an ordinary case is running on into bad symptoms with great depression of strength, the best medicines are port wine, brandy, milk, beef-tea, and beaten-up eggs; but in addition Prescr. 14 may be used. During convalescence, if the case has been severe, and if it be free from any complication, quinine is a most useful restorative. (Prescr. 21.)

Sequels to Scarlatina.—There is probably no other disease of childhood that is so liable to be followed by such a variety of formidable maladies. The most common of these complications are—

1. Dropsy.
2. Inflammation and abscess of the glands of the neck and throat.

* One-twelfth, or less, of carbolic acid.

3. Inflammation and discharge from the ears.

4. The development of diseases previously lying latent in the system.

Dropsy is quite as likely to occur after a mild as after a severe attack. It usually comes on during convalescence or whilst the skin is peeling (most frequently, perhaps, on or about the twenty-first day), and is the result of cold from neglect. The child begins to be feverish again, and shortly appears puffy and swollen, with an altered countenance; the flesh of the swollen parts is doughy and leaves "pits" after pressure with the finger. At the same time the urine becomes scanty in quantity and has a dark, dirty, smoky appearance, from the admixture with it of a very small amount of blood.* If the dropsy and the whiteness of skin of a child in this state begin to increase, while at the same time a cough commences, only too often serious symptoms are impending. He suddenly becomes worse; difficulty of breathing, which grows into a struggle for breath, comes on, the skin becomes of a livid or purplish colour, he vomits and involuntarily passes his motions,—and before long he dies suffocated from dropsy of the lungs. It is a condition from which not many recover.

Information on the nursing and management of dropsy will be found in a future chapter devoted specially to its consideration.

Inflammation of the Neck and Throat.—This is a serious complication which is more likely to come on after a case in which sore throat has been a prominent symptom, than after any other. It is probably caused by the

* If a little of the urine is boiled in a spoon over a lamp flame, or if a little strong nitric acid is added to it,—or if both plans in one are tried,—it will become full of a white cloud, which will soon settle into a white sediment; *albumen*. The amount of albumen is generally a measure of the amount of mischief existing in the kidneys.

absorption, by the glands of the neck and the surrounding parts, of the scarlatinal poison from the inflamed and sloughy throat.

In most cases, various hard and swollen glands are first discovered in the neck near the corner of the jaw; and the mischief *may* stop here, and the swelling may after a time subside. Or the glands may become still more inflamed and "gather," an abscess being formed. Unfortunately, however, the case may take an even more unfavourable turn; the swelling in the neighbourhood of the glands increases, and becomes so hard and brawny that you can no longer feel them, but only a brawny collar (as it were) stretching around, or partly around, the neck. Then the child is apt to lie in a half-stupor, and shows symptoms of great prostration of strength. Next, probably, the skin of the neck becomes dark at one spot and begins to give way, and ulceration and sloughing (or mortification) ensue. Sometimes a blood-vessel is thus laid open, and dangerous bleeding occurs. In the case of one little patient of my own, the bleeding was sudden, profuse and fatal. Recovery from this state, when it occurs, is protracted; for the little sufferer has been brought very low, and if there is much sloughing, the poor child usually sinks under it.

Nursing.—As soon as swollen glands are discovered, use at once frequent hot fomentations; but if the neck and throat proceed to get puffy and swollen also, have recourse to continued hot linseed poulticing in addition. The swelling should be thus treated with the utmost assiduity while in this early stage, for if it passes on to the "brawny" condition, a very unfavourable state of things is usually set up, and one in which remedies are not nearly so effective. If abscesses form (and they are extremely likely to do so), the mother should oppose no resistance or objection to the doctor's proposal to open them by lancing. It is *essential*

that this should be done, and done *early* and *thoroughly*, and occasionally by more openings than one.

Great care and attention will be required in sustaining the child's strength by strong and often-repeated nourishment. If the "brawny" condition or abscess comes on, strong beef-tea, milk, eggs, and wine may be given at such times and in such quantities as the doctor may order. Other nourishing and stimulating articles may be selected from the Extra Diet Table (p. 78).

Treatment.—If the tonsils and the back of the throat are in a bad state, it can never be wrong to well brush them over with tincture of iron or with solution of chloride of soda in the manner described on p. 271. For the rest, the only medicines that are of any use are such as support the strength or stimulate the vital powers; such as quinine (Prescr. 21), iron (as in Prescr. 44), or bark and ammonia (Prescr. 14).

Inflammation of, and Discharge from the Ears.—For all information on this sequel of Scarlatina, refer to a future chapter in which it is fully treated of.

The Development of Latent Diseases.—Not after scarlatina only, but also after small-pox, typhoid fever, and many other exhausting diseases, maladies that have hitherto been dormant and perhaps unsuspected, are very apt to spring into activity. The diseased conditions of the system to which the names of *tuberculosis* and *rickets* have been given, seem to be fostered by an attack of scarlatina, and to be incited thereby to manifest themselves in one or more of the many maladies peculiar to each state. A knowledge of this fact only adds one more injunction as to the care and caution with which the convalescence of children from scarlet-fever should be managed.

CHAPTER III.

SECTION I.—ON MEASLES.

Medical Name.—Sometimes called "Morbilli;" sometimes "Rubeola."

Cause.—Contagion or infection.*

Varieties.—Two: the ordinary measles, and a very severe form of the complaint that has been called Malignant or Black Measles.

Is it Infectious?—Yes; to children who have not had it, very much so. It is not capable, except in isolated instances, of being communicated a second time to the same person.

Period of Incubation.—From ten to fourteen days.

Symptoms.—(1.) *Of an Ordinary Case.*—The disease usually commences rather abruptly. It is ushered in by alternate chilliness, or even shivering and flushes of fever, accompanied by head-ache, thirst, and a white furred tongue. At the same time, or even previous to the appearance of these symptoms, the eyes become heavy, bloodshot and watery, with swollen eyelids; the child is constantly sneezing also, and he is hoarse or husky in voice, and seems to be in the midst of what is termed a "crying" cold. Usually too there is a short, dry, hard cough, and this symptom is sometimes a very distressing one, preventing rest and sleep, and exhausting the child's strength. At the end of the third or the beginning of the fourth day of this sort of illness you

* Dr. Flint, an eminent American physician, has discovered that a disease similar in almost all respects to Measles is produced by a fungus developed upon straw.

may look out for the appearance of the rash: and you will usually find it to appear first on the forehead and face, from which part it spreads gradually downwards over the whole body. It is made up of innumerable red spots, raised a little above the surface, and not unlike small flea-bites, run together into blotches. It is of a dull and dingy red, not bright and scarlet as in scarlatina. On its appearance the fever is rather increased than diminished, but full compensation for this is sometimes met with in the fact, that then the cough usually abates and occasionally even ceases. On the seventh day of the disease, or the third of the rash, the latter begins to fade, and the severity of the symptoms usually, but not always, declines with it; so that in a fortnight from the commencement of illness, the child is convalescent. As the rash fades there is often a little diarrhœa, which is rather salutary than otherwise, within proper limits.

The skin is to a great extent renewed after measles, but the old skin does not come off as after Scarlatina, in flakes and sheets, but in powder and in very small bran-like scales. In many cases even this is scarcely perceptible.

(II.) *Of Malignant Measles.*—This *may* begin mildly and as an ordinary case, but more frequently the symptoms are violent and bad from the very outset. The fever that ushers in the complaint is severe; the rash is delayed in its coming out, and is very scanty when it does appear, as well as being livid or purplish in colour. Sometimes it appears, disappears, and appears again. Then suddenly the vital powers seem to give way; there is extreme prostration of strength, the child lies heedless of everything and uncomplaining, sometimes restless and tossing, sometimes still, delirious and muttering. The tongue is dry and brown, the lips and teeth become covered with a black incrustation, the muscles twitch involuntarily, dark purplish spots come out on various parts of the body, the breathing is hurried,

rattling and laboured, the motions are passed unconsciously, the limbs become cold, and death ere long usually closes the scene.

Distinctions.—Some cases of Measles in their outset, require to be distinguished from Scarlet Fever, and some from Small Pox. It is possible also for a case of Roseola or False Measles to be confounded with one of true Measles.

From Scarlet Fever.—The onset of Measles is characterised by swimming of the eyes, discharge from the nose, and cough; that of Scarlet Fever by sore throat only. The rash of Measles does not come out till the third or fourth day of illness; that of Scarlet Fever comes out on the second day. The rash of Measles is of a dull red, unequally diffused over the body, thickest at its upper parts, and made up of circular spots run into patches, and very slightly raised; that of Scarlet Fever is bright scarlet, uniformly diffused over the whole body, and made up of innumerable minute red dots or points, not raised; and forming an even blush rather than patches.

From Small-Pox.—See Small-Pox. Page 290.

From Roseola.—See Roseola. Page 282.

Prospects of the Case.—These are usually *very favourable.* A very large proportion of all the ordinary uncomplicated cases of Measles do well. Unfavourable symptoms are present when the rash is late, scanty or discoloured; when the cough does not abate and difficulty of breathing sets in, pointing to the accession of bronchitis or of congestion or inflammation of the lungs. The liability that exists to the occurrence of one of these maladies during or immediately after Measles, forms the commonest danger of the disease. The prospects are unfavourable when any, or all, of the symptoms detailed as constituting Malignant Measles make their appearance. In this form of the complaint the worst is always to be feared.

Mortality.—The deaths in England in 1870 from measles were 7,543, of which number 6,877 occurred under five years of age: the severest mortality by far is found to have taken place in children between one and three years of age.

Nursing.—The instructions given in the chapter on Disinfection are to be carried out; and it is advisable that the Nursing Plan (page 203) should be used. Even if the case is a very mild one, the child should be confined to bed, and the room should be moderately warm (60° to 65° F.); for it is important that he should be guarded in every way from taking cold. A chill has often been known to bring on some inflammatory disease in the chest, and is always, in this complaint, a fruitful source of mischief. But it should be remembered that the room is not kept warm in order to *heat* the little patient, but in order to preserve an equable temperature, and to warm the air that he breathes. The light must be moderated to suit the congested eyes, and the room must be kept very quiet.

If there is much cough, frequent, hard, dry and distressing, large linseed poultices covering the chest in front or on the back, often give great relief. So also does the inhaling of steam, whether this be done by means of a proper inhaler, or of an ordinary deep jug nearly filled with hot water, or merely by placing a large kettle on the fire, and conducting the steam through a tube fitted to its spout into the atmosphere of the room. If the rash is tardy in coming out, or if it is but slight and ill-developed, the use of the warm bath, as recommended in scarlatina (p. 269), may be had recourse to. If the heat and dryness of the skin are great, tepid sponging, applied over a small portion of the surface at a time, will relieve it. The feeling of tightness and swelling often complained of in the hands and feet, is best alleviated by rubbing them with some hard, fatty sub-

stance, such as suet or (more elegant) camphor ball. The diet must be very light, sparing and unstimulating: it should be given in much smaller quantities, but oftener, than in health. Milk, arrowroot and milk, thin gruel, chicken or veal broth, or weak beef tea, will form the best staples of diet. Drinks may be allowed in larger quantity than in health; but as the whole of the diet is taken as liquid, mere cooling drinks must not be too freely given. Perhaps the best of such cooling drinks are Nos. 24 and 25 (Appendix A.), raspberry vinegar and water (weak), or toast and water. Linseed tea, if the child can be induced to take it, seems sometimes to have a soothing effect upon an irritable cough. There is no reason why the incessant cry of the little patient for "cold water" should not be now and then indulged in moderation. Indeed *iced* water seldom or never does any harm, unless given too largely, and is most useful in checking vomiting when it occurs.

If the case be one of malignant measles, the doctor in attendance will probably order some form of stimulant; and it will often be found necessary to begin the use of it early. As soon as ever the livid, scanty rash is seen, directly the prostration of strength is manifest and the tongue shows a dry brown surface, the time has come energetically to ply stimulants and strong nourishing articles of food. Out of those numbered 16, 17, 21, 22, and 23 in the Appendix A, one or two may be selected; and they must be given either alternately, or together with port wine or brandy (or whatever stimulant is ordered), in some form, by little at a time, but very frequently. It is impossible and unnecessary to lay down any rule here as to how much stimulant will be requisite; this point the medical man in attendance will decide. It may be stated, however, that in serious and prostrating disease, children, for the most part, bear stimulants very well.

As much care should be exercised by the mother over her

child in every particular, during its recovery as during the illness. She will have to exert a judiciously restraining influence over returning appetite and activity; the diet must be as plain and digestible as ever, but more nutritious and solid in character; the body must be as thoroughly protected from cold as before, the warmth of the air to be breathed must be as sedulously maintained until all cough has gone, and the day for the little convalescent's first ride out in the open air must be most carefully chosen with regard to wind and weather.

Treatment.—In an ordinary case, and if the arrival of the medical man is delayed, some such draught as Prescr. 15 may be given to promote the action of the skin and soothe the cough. Laxatives ought to be given very carefully, as in Measles the bowels are usually inclined to diarrhœa, and their action is likely to require checking rather than stimulating. In Malignant Measles the most important thing to do is to endeavour as far as possible to sustain the strength. Therefore stimulants, nourishing broths, &c., are necessary, and some such supporting medicine as Prescr. 14.

Section II.—Complications and Sequels of Measles.

The danger of Measles lies almost entirely in those more serious diseases which are found to have a tendency to complicate its course, or to follow after it. Of these, the most frequent are here named; but all information concerning them must be looked for on other pages, under their respective headings.

Convulsions—are not very uncommon at the outset of the attack; and occurring at this time, are not nearly so dangerous as when they come on later in the disease. Appearing late in the disorder, they are usually associated with some inflammatory disease, and prove fatal.

Bronchitis—is perhaps the most frequent complication.

Always dangerous, it is particularly so to children under two years old.

Chronic Congestion of the Larynx.—The larynx is situated at the top of the windpipe, and is the organ of the voice. In this condition the voice is husky and the cough hoarse; the tonsils are usually swelled at the time, there is deafness in one or both ears, and the child snores a good deal. This state of things is apt to be troublesome, for even when it has with difficulty been got rid of, it is very likely to return again and again on the slightest exposure to cold or damp.

Inflammation of the Ears.—Though this may not sometimes attract much attention at first, it ultimately becomes very apparent by the appearance of a discharge of thinnish, pale, yellow matter. The doctor's attention ought at once to be called to it; since cases of this sort have far too often resulted in permanent deafness.

Inflammation of the Eyes, or Ophthalmia.—A very considerable degree of inflammation, not of the eye itself, but of the mucous membrane that lines the eyelids and covers the front of the eye, is often a sequel of measles. It is attended by irritation and pain, swelling and profuse discharge of matter. Most of my readers will be able to recall instances within their own experience, in which children have thus even lost their sight.

Hooping Cough.—It is an ascertained fact that an attack of measles distinctly predisposes to one of hooping cough. Doctors are accustomed to notice how frequently an epidemic of the latter directly succeeds one of the former. The practical deduction from this is,—be more than ordinarily careful to preserve a child who has lately had measles, from any possible infection of hooping cough.

Section III.—On Roseola or False Measles.

This is only introduced here for convenience of comparison with true measles, as it is not a fever at all, but falls more properly under the head of skin eruptions. It is however occasionally mistaken for measles and sometimes for scarlet fever. It is most common among young children and in hot weather.

Cause.—Anything which tends to weaken the nervous system, operating for any length of time. Eating largely of indigestible food. I have known many attacks produced in adults by eating shell-fish, and in children by unripe fruit and some forms of sweetmeats. Drinking draughts of cold water or of any cold liquid, after getting very hot. Teething: and occasionally worms.

Is it Infectious?—No; never.

Symptoms.—A rose-red rash appears, not usually preluded by any fever or signs of constitutional disturbance, though some slight feverishness and headache *may* occasionally occur. The rash is very like that of measles, but even more than it, has the appearance of flea-bites. It is nearly always confined to a portion of the body, to one limb, or to a part of the back, chest or stomach; it is never universally diffused. The time that it may remain is quite uncertain; but as a rule a rash that comes suddenly goes suddenly, while one that is gradual in its coming is usually slow in its departure.

Distinction.—*From Measles.*—By the absence, for the most part, of feverishness and of any feeling of illness; by the absence of the swimming of the eyes, cold in the head and cough; and by the fact of the rash being usually confined to one portion of the body.

Prospects of the case.—Always favourable.

Nursing.—See carefully to the plainness and digesti-

bility of the diet, and give a few warm baths. Let the skin be kept cool but not chilly. If there is constipation, give a dose of some laxative (see page 161); if there is reason to believe that worms are present and may be causing the rash, take means to get them ejected. No treatment beyond this is usually necessary: but as cases of it vary considerably, a medical man ought always to be asked to see the child.

CHAPTER IV.

ON CHICKEN POX.

Medical Name.—Varicella. (Sometimes called by the lower classes, "Glass Pock.")

Cause.—Contagion. Dr. Heberden, an able physician of the last century, who wrote a capital account of the disease, says it "seems as infectious as small-pox." It appears to be exclusively a disease of childhood, and the records of the Children's Hospital (London) show that out of 727 cases, 508, or more than two-thirds, were between the ages of one and five.

Period of Incubation.—Probably about seven days.

Symptoms.—The malady comes on with headache, feverishness, pains in the limbs, accelerated pulse, white tongue, thirst, loss of appetite, and sometimes even with vomiting; the natural character of the water is generally but little affected. This initiatory fever may be as severe as that of measles or of modified small-pox; but after lasting for a period of about twenty-four hours, more or less (but which is sometimes extended as long as seventy-two hours), the rash begins to come out, when, as a rule, the fever abates and the child passes into a condition of great relief. The febrile condition cannot however be said to have *entirely* passed away, until nearly a week from its commencement is past. The rash first appears as a number of little red elevated spots which soon become pimples; these on the second day develop into vesicles (or white, blister-like eminences), and are filled with a whitish or pale straw-coloured fluid; on the

third and fourth days the vesicles attain their largest size, the skin over them tightens as it were, and they get a somewhat pointed and well-defined top. Soon after this they burst and dry up, except such as contain thick yellow matter (pus), or are much inflamed about their bases. On the fifth day they begin to crust, and during the next few days the crusts fall off, leaving certain red spots that soon fade away. But it will not be found that the rash is following this regular and definite course all over the body at the same time. It comes out in crops, a fresh crop appearing every night for three or four nights. The first usually is seen on the breast and back; the second comes probably on the head, face, and neck; and yet another, or more than one other, on the legs and arms. So that on the same child, the rash in one place will be in quite a different stage of development to that of another place, according to the time when each portion first appeared.

Distinction.—From Small-Pox. (See page 291.)

Prospects of the Case.—"No physician has ever seen a child who has died of chicken-pox."—(Trousseau.) The worst result that can usually happen to a child who has it, is to be left in a poor state of health thereby;—which should be attended to.

Nursing.—Bearing in mind the infectiousness of the disease, let the instructions on disinfection be carried out, altogether or in part. It is best that the child should be put to bed; indeed he will take to it naturally, and he should remain there, lightly covered, till all the oppression of the febrile symptoms has passed off. If he then gets up, he should be carefully kept from cold, but need not be rendered uncomfortably warm. Give a milk diet and no animal food (except milk) for a week; towards the end of the time this may include plain farinaceous and milk-puddings, plain custard pudding, bread and milk and

bread and butter. If the fever runs high at first, cooling drinks (Nos. 24 or 25, Appendix A) may be given. During all the time that the rash is out, use every endeavour to prevent the child from scratching and breaking the vesicles, and from picking off the scabs. His doing so, tends to leave scars.

Treatment.—If the feverish symptoms at the onset are severe, it may sometimes do good to give some simple diaphoretic (Prescr. 10). For the rest, attend to the daily evacuation of the bowels; a dose of castor oil or Prescr. 12 would be effectual in the first instance.

CHAPTER V.

ON SMALL-POX.

Medical Name.—Variola.

Cause.—Contagion or infection only.

Varieties.—There are two chief varieties, the Distinct and the Confluent Small-Pox: in the former the pustules are separate and distinct, as the name implies; whilst in the latter they come out so closely, that they run together or coalesce. Other varieties of less importance are known to medical men, which I need not describe to my readers.

Is it Infectious?—It is perhaps the most infectious disease known. "It may be given by the breath of the patient before the eruption has appeared on the surface of the body; and it continues infectious so long as any of the dry scabs resulting from the original eruption remain adherent to the body; a single breathing of the air where it is, is enough to give the disease" (Marson).

Cases of small-pox occurring in the same person a second or even a third time are not unknown, but they are very rare. The rule is that an attack of small-pox gives complete immunity from any future one.

Period of Incubation.—Twelve days after the disease has been taken, its symptoms begin to manifest themselves in the body. During these twelve days the child almost always enjoys his usual health.

Symptoms and Progress of the Disease.—*Distinct Small-Pox.*—Perhaps the symptoms of small-pox are rendered clearer, if we bear in mind that almost every

case, unless death occurs during its course, goes through three definite stages, which I will point out as we proceed. If a child is seized with *shivering*, followed by fever, together with *head-ache*, a feeling of sickness and perhaps *vomiting*, if he has *acute aching pain in the back*,* a very high temperature of the body (104° or 105° Fahr.), a white furred tongue, muddy, high-coloured urine, and a sensation or appearance of general distress, you may safely suspect that that child is "sickening for" the small-pox. But if at the end of forty-eight hours of illness of this kind, you discern an eruption of pimples on the skin, chiefly on the face, forehead and wrists, you have your fears greatly confirmed. Children often suffer from convulsions in addition to the above symptoms. This first forty-eight hours of high fever constitutes *the first stage* of the disease.

If the case is going to be one of Distinct Small-Pox, very great relief is usually apparent in the child's condition on the coming out of the rash. It is as a calm after storm; the fever abates, the heat is lessened, the head gets better, and the pain and vomiting cease. If you pass the fingers over the eruption as it appears, the pimples feel hard, as if small shot or mustard seed had got under the skin; but they are painless. The first crop of the eruption comes out on the face, head and wrists, next on the body, whilst that on the legs and feet is usually two days behind all the rest. For four days the eruption is *vesicular*, that is, the pocks look white and are filled with clear fluid; then (all the time gradually enlarging) they begin to get yellow and the clear fluid turns to matter: and in eight days from the first appearance of the eruption, it has attained its height. Whilst the pustules are "ripening," a deep red halo forms round each one, and the whole face swells so that the eyes

* This symptom is not so marked or constant in quite young children.

become closed and the features quite unrecognisable. At this time also, the saliva is always dribbling from the child's mouth; and these symptoms, the red halo, the swelling and salivation, are very favourable. All this time febrile symptoms have been present to a greater or less degree; sore throat has been complained of, from the formation of pustules there as well as on the skin; and latterly a very sickly, greasy smell has been emanating from the patient: any one who has smelt it once will always know it again. These eight days, while the eruption is developing or ripening, constitute *the second stage* of the disease.

On or about the eighth day, *the third stage* of the malady commences by the pustules bursting and discharging the matter they contain, which dries up and forms scabs. But this process is usually (except in very mild cases) accompanied by some return of the fever and rise of temperature, and possibly by transient light-headedness. If the case is a mild or ordinary one, this secondary fever soon passes off; the swelling and intervening redness subsides, and between the eleventh and fourteenth days the scabs fall off, leaving the skin covered with spotty stains of a reddish brown colour. This discoloration does not often fade quite away under a fortnight, and sometimes it takes longer. As the latest pustules are forming scabs, and whilst the latter are dropping off, convalescence begins. The fever and its accompanying train of symptoms take their final leave, the tongue begins to clean, the appetite to return, and animation and interest in surrounding things to re-appear. But the child is too often miserably reduced and weak, and the convalescence is nearly always slow.

Confluent Small-Pox.—The chief differences between a case of this and of Distinct Small-Pox are these. The fever that ushers in the disease is of a more violent and unmanageable kind, there is more back-ache, more vomiting, and

there may probably be convulsions also. The eruption comes out earlier; whatever swelling of the face there may be, comes early, often by the fifth day of the disease; and the limbs swell also. The vesicles on the face run together into large blebs, they have no red halo, and are of a dirty-brownish colour, and the intervening spaces on the face are doughy and pallid. In the Distinct Small-Pox the secondary fever does not show itself till the eleventh day of the disease; but in a confluent case, if the little sufferer lives so long, it comes on, and violently, on the eighth day of the disease. It is usually accompanied also by delirium, cough and difficulty of breathing, fœtid discharge from the nose, an intensely foul state of the mouth, a dry and brown tongue, and great prostration of strength. When the pustules break, large brown or black scabs are formed, giving off a disgusting smell. Complications are more likely to arise, and other diseases to follow, than in a case of Distinct Small-Pox. Sometimes the power of the poison seems so strong as to extinguish life before the disease is fairly developed; though perhaps the most critical and dangerous period of the malady is the time of the secondary fever, from the eighth to the tenth day of the disease. If, however, the child weathers this, he has still before him a perilous passage, in steering clear of fatal exhaustion, of complications, and of consequent disorders.

Distinctions.—It is obviously of great importance to be able to decide *early* what is, and what is not a case of this terrible disease.

From Measles.—The fever with which measles commences is not usually so intense as that which ushers in small-pox, nor is aching in the back a prominent symptom, nor is vomiting so usual or so persistent. If small-pox is approaching, the swimming of the eyes, cold in the head and cough of measles will be wanting. The temperature as marked by

the thermometer (see p. 151), will in small-pox often rise as high as 106° before the rash appears: it will not do this in measles. The rash of measles is at first raised above the surface, and sometimes a good deal raised; but it *never* has that *shotty, seed-like feel* that the small-pox eruption always communicates to the fingers. When the small-pox eruption has been out for a few hours, no further room for uncertainty exists; and the same is true of the measles rash, for had it been small-pox, the distinctive characters of that eruption would have become manifest in these few hours.

From Chicken-Pox.—The commencing fever of chicken-pox is nearly always mild, that of small-pox is nearly always severe, even if the subsequent case prove mild. If chicken-pox be impending, the intense back-ache and constant vomiting of small-pox will be absent. In chicken-pox the rash comes out after twenty-four hours' illness, in small-pox not usually till after forty-eight hours. The rash of chicken-pox does not feel hard and shot-like, as does that of small-pox; and in chicken-pox, if the back is examined, two or three large vesicles, much larger than the others and more spread out, are found on the shoulders or between the shoulder-blades. The vesicles of small-pox, as time goes on, become yellow and mattery; those of chicken-pox (unless they are scratched or irritated) do not.

Prospects of the Case.—*Favourable conditions and symptoms.*—(1) It is the most favourable condition of all, if the child has been previously vaccinated, even if only imperfectly (see p. 236). (2) If the initiatory fever and accompanying symptoms are not severe. (3) If the rash comes out freely, and if much relief is at the same time experienced thereby. (4) When the pustules (or pocks) are not numerous and are distinct. (5) If towards the eighth day of the eruption, the swelling of the face takes place freely and without much constitutional disturbance, and if

the red halo forms well round the pustules. (6) If the secondary fever coming on about the eighth day of the rash, is slight and uncomplicated by cough, difficulty of breathing or discharge from the nose; and if it passes off quickly. (7) "If the child is between ten and fifteen years of age, during which period the smallest mortality from this disease occurs" (Marson). (8) If the child be of a previously strong and healthy constitution.

Unfavourable symptoms and conditions.—(1) The converse of all the above favourable symptoms must necessarily *be more or less unfavourable.* (2) Confluent small-pox is always dangerous; and out of such cases of it as have never been vaccinated, 50 out of every 100 die. If the pustules are flat, and if the halos round them on the arms and legs are clarety in hue, and if the eruption on the face has a white and doughy appearance, recovery very seldom takes place. (3) Cases in which much deliriousness occurs early, usually do badly. (4) "Children who grind their teeth, hardly ever recover" (Marson). (5) If there is much cough, or hoarseness, or difficulty of breathing, or discharge from the nose, the prospects are very bad. (6) It is unfavourable, if the child is very young: half of all (unvaccinated) cases under five years of age, die.

The most critical time is the second week, and the most critical *days* are usually from the ninth to the twelfth of the disease.

Mortality.—In the year 1870, out of 2,620 deaths in England from small-pox, 1,245 occurred under five years of age, and 468 between five and fifteen.

Nursing.—*Of an Ordinary Case.*—All the instructions given in the chapter on Disinfection must be rigorously carried out. If the weather is warm, keep the room airy and cool; if it is cold, do not let it be more than agreeably warm. It is best to use the Nursing Plan (see p. 203). The bed

coverings should be light; you cannot "bring out the eruption" by piling on blankets, but you can do mischief thereby.

The diet must at first, at any rate, be low,—milk, arrow-root and milk, bread and milk, gruel, roasted apples, and a little very weak beef-tea (if the child is old enough, and if the onset is not marked by high fever). But "a drink of water" will be what is most craved for, and it may be given; nothing is so good for the parched mouth and throat as pure cold spring water taken in moderation. The fever drink, No. 24 or 25 (Appendix A) or Prescr. 13, may also be made use of; and the *juice* of oranges will always be welcome and will do no harm. Something must be said as to cutting off all the hair. Wait until the fifth or sixth day, to see what the course of the disease will be. If it is likely to be mild and modified, this need not be done; but if it threatens to be severe, it should then be cut off at once. In an unvaccinated case, it is best not to wait at all, but to cut it all off directly the nature of the disease is ascertained. Do not *shave* the head in any case. If there is great heat of skin, tepid sponging may be used as previously directed (p. 184), without the least fear of "driving in the eruption," but it must be done very gently, so as not to injure the pustules. If the eyelids become much swollen and stuck together by discharge, as they often do, warm water bathing will soothe and release them; when released, keep their edges greased with a little olive oil that they may not stick again. In the case of children, there is no means that has much effect in relieving the sore throat complained of. It arises from the presence in the throat of a certain amount of eruption similar to that on the skin; and as long as the pustules are there, and are inflamed, the sore throat must remain.

"How am I to prevent my child from being marked?" is a question constantly and anxiously asked by mothers. Firstly, from the time of the pustules forming, you must tie

up the child's hands in balls of cotton wool to prevent him from scratching and tearing them open. Then, when they are getting nearly to the height, paint them all over rather thickly from time to time with calamine cerate. (Prescr. 16.) When they have burst, the same dressing may be continued, mixed with the best olive oil; or a mixture of olive oil and lime-water in equal parts may then be used. Mr. Marson* says the scabs should not be allowed to dry and remain any long time on the nose, and other parts of the face,—particularly on the forehead and near the end of the nose,—for when this does occur, the dry scabs themselves leave deep marks in the skin. As convalescence proceeds, a few warm baths should be given at intervals of a day or two.

Of a Confluent Case.—The chief difference in the nursing will consist in the necessity that will probably arise, to have early recourse to strong nourishment and stimulants to sustain the prostrated strength. This prostration is especially likely to occur towards the eighth day of the disease, or when the pustules are ripening. The medical man in attendance will then very probably see fit to order beef-tea or strong nourishing broths, milk, and port wine or brandy, in such quantities as may seem required: and the mother must see that what is ordered is taken,—her child's life will depend upon it.

The modifications of management and nursing required by the various complications of small-pox are far too copious and minute in detail to allow of being described in a work of these limits.

Treatment.—In the unavoidable absence of a medical man, there are only two things to be done. (1st) To endeavour to moderate the fever

* For many years the surgeon of the Small-Pox Hospital, London.

by occasional mild laxatives, and by saline or diaphoretic medicines. The laxative is to be given at the onset of the fever, and to be repeated once or twice in the course of the disease if necessary. The bowels should be relieved every other day at least. The best laxative for the purpose is, perhaps, Prescr. 12, 18, or 19: or a dose of castor oil; a good form for the saline or diaphoretic medicine is No. 10, 11, or 17. (2nd) To sustain the vital powers, when they appear to be failing, by tonics and stimulants. This method of treatment is often required in a confluent case from a rather early period of the disease, but it is seldom called for otherwise, until the fever has left and the malady is passing off. A good form for a mixture combining these properties is Prescr. No. 14. If the bowels are too much relaxed, or if there is diarrhœa, Prescr. No. 20 will usually stop it. In convalescence, free from any complications, quinine is almost always very useful (Prescr. No. 21).

Complications and Sequels.—The most common are:—

Inflammation of the Lungs—which usually follows the secondary fever, when it comes at all. Very dangerous indeed.

Bronchitis—may also come on late in the disease.

Inflammation of the Tongue.—During the secondary fever the tongue sometimes becomes enormously swollen and dry, so that the child cannot speak or close the mouth. It is a fatal symptom.

Abscess of the Ear:—sometimes followed by permanent deafness.

Inflammation of the Eyes, or Ophthalmia. Sets in on the fifth or sixth day, runs a short course, and usually subsides with simple remedies. But a distinct and a much more serious complication is *ulceration of the transparent part of the eye*, from the formation of a pustule on that part. This, if it happens, is set up during the secondary fever; it goes on very often to perforation of the eye, allowing its contents to escape; and loss of sight is then the inevitable result.

All the above maladies are treated of sufficiently fully in future chapters.

Section II.—Modified Small-Pox.

Medical Name.—Varioloid.

Nature of the Disease.—Small-pox modified by the fact of vaccination having been performed at some previous time more or less successfully, is usually so shorn of its terrors that it appears like a different disease. But it is not; it is the same: *it is as contagious as the unmodified form*, and it is capable, by contagion, of producing in an unvaccinated person the most severe confluent small-pox.

If indeed the disease be taken by one who has been vaccinated (and such cases are the exceptions that prove the rule), the malady will be more or less mild, according to the amount of success that attended the operation, or to the time that has elapsed since its performance.

It is this form of the disease that we have generally to deal with in children. Fortunately the majority have been vaccinated; and amongst the educated classes, this is true of nearly all. But it is not necessary for me to describe the course of the modified disease in detail; it will be sufficient to state the following broad and general facts.

It follows in its development the course of the unmodified disease more or less closely, but *sometimes* with great irregularity.

It is *modified* almost throughout its whole course. The fever with which the disease begins, and its accompanying symptoms, are *sometimes* as sharp and severe as in the unmodified disease; but the coming out of the eruption, the time of its duration, and the chances of complication, are all materially diminished; while the great danger of the malady, the secondary fever, is altogether absent. As a rule, when the initiatory fever is over, the child has but very little more distress or feeling of extreme illness to endure, and will often sit up in bed and seem comparatively cheer-

ful. The amount of eruption may be so lessened, that not more than from a dozen to twenty pustules can be found on the whole body. During the epidemic of small-pox in London in 1870-71, I had many patients who could not show as many even as this, and I remember one who had only *three*, but they were unmistakable.

CHAPTER VI.

ON SIMPLE CONTINUED FEVER.

Medical Name.—Febricula,—or "little-fever;" and this is a better name every way than the English epithet given above. It is "Simple" certainly; but "Continued," in the strict sense of the word, it frequently is not, beginning and ending its course in about three days.

Cause.—The causes are various, and sometimes unascertainable. Exposure to great heat or to long continued cold, surfeit, fatigue of body or great excitement of mind. It is probable also that a small dose of the poison of some other infectious fever may be inhaled or otherwise taken in, and though insufficient in quantity to produce symptoms of the fever from which it was itself derived, it may nevertheless suffice to set up an attack of Febricula.

Is it Infectious?—There is no evidence that it is.

Symptoms.—Febricula commences with loss of appetite, a feeling of general illness, which the child cannot explain or refer to any one part, aching of the limbs, chills, and a "goose-skin" appearance of the surface, followed by fever and headache, which in its turn is followed by perspiration. The tongue is white; the urine is scanty and high coloured when passed, but becomes thick on standing; and there is thirst. Meanwhile the temperature, as indicated by the clinical thermometer (see p. 151), rises quickly, and suddenly. A rise to 103 degrees, or even 106 degrees Fahrenheit, in a few hours, is no uncommon thing; and this elevation forebodes no special mischief. This high temperature may

last for a few hours only, or for as much as a day, but seldom for more, and then it sinks to the ordinary level of health almost as quickly as it rose. The other symptoms abate, the quantity and condition of the urine notably improve, appetite returns, and the child is presently well again. There is no rash.

A case as thus described begins and ends in from 48 to 72 hours, but protracted cases of Febricula are occasionally met with, which only differ from the shorter ones in the time occupied in the lessening of the temperature, and the process of recovery. The height of the fever is attained as rapidly as in the short cases, nor is it maintained much longer than in them, but the succeeding course of the complaint as it tends towards health is slow.

It is not an uncommon disease in temperate climates like our own, but it is much commoner in the tropics. Dr. Aitken says that "the ardent fever," "the sun fever," and "the common continued fever" of India and Burmah, are all cases of severe and protracted Febricula.

Distinctions.—Febricula in its onset resembles the commencement of almost every other febrile disease, but may be readily distinguished from them by the absence of all the symptoms that characterise those maladies. There is no sore throat or rash as in Scarlatina, no redness of the eyes or cold in the head and cough as in Measles, no eruption as in Chicken-pox, and no violence of symptoms or vomiting or eruption as in Small-pox. The features that distinguish it from Typhoid Fever are not so obvious, but may be made out by comparing the symptoms of that disease (p. 306) with those of Febricula.

Prospects of the Case.—Usually very favourable.

Mortality.—Out of 5,882 deaths registered in England in 1870 as from this malady, 1,615 were of children under five years of age, and 2,847 under fifteen. It is probable,

however, that very many of these deaths, returned as from simple continued fever, were in reality cases, some of indistinctly defined Typhoid, and others of diseases in which the fever was only a symptom and not the *cause* of death.

Nursing.—It is best that the child should be put to bed: the bedclothes should be warm or light according as he feels chilly or feverish. Don't let him throw them off whilst he is perspiring. His diet must be of the simplest, and without any animal food, except milk; milk or arrow-root and milk, gruel, very weak tea (if old enough), and farinaceous food (if he will take it), are quite sufficient to sustain nature, until the fever has spent itself. The drink Nos. 24 or 25 (Appendix A) may be given, or raspberry vinegar and water if the child is more than three years old. Whilst the temperature is rising, cold or tepid sponging will be very pleasant and comforting.

Treatment.—Such simple measures as are recommended for chicken-pox are sufficiently appropriate here. (See p. 286.)

CHAPTER VII.

ON TYPHOID FEVER.

Medical Names.—Typhoid, Gastric, or Enteric fever. The name "typhoid" means *like typhus*, which it is not; the names "gastric" and "enteric" refer respectively to the *stomach* and *bowels*, as the parts on which the stress of the disease falls most heavily. Another name has been given to the malady by Dr. Murchison, and it seems to me the best of any, since it has reference to the cause and origin: he calls it "Pythogenic Fever," or the fever *begotten of filth*.

Causes.—*Predisposing Causes.* Youth;—There is a much larger proportion of cases in the first fifteen years of life than during any subsequent and similar period. Season of the year;—It is often so prevalent in *autumn* as to have received the popular name of the "fall fever." Times of drought;—It is much more prevalent in a dry than a rainy season.

Exciting Causes.—Poison inhaled with the air arising from drains, sewers, or cesspools, or from putrescent matters or excrement of any sort. Water drunk that has been poisoned by the leakage of sewage into a well, or by the defilement of running water by surface drainage. There would be no difficulty in filling the remainder of this book with the narration of hundreds of instances of Typhoid Fever occurring endemically or in isolated cases, where the disease was most clearly traced to the pollution either of the atmosphere by foul sewer gases, or of the water by the filtration of drainage and ordure into it.

Three or four cases will suffice as illustrations.* (I.) "A gentleman under my own care had often complained of the offensive smell in the lower part of his house on going down in the morning; and was compelled to open the windows and doors for some time, in order to remove it. This arose from a neighbouring drain, the emanations from which had frequently been so copious as to tarnish the candlesticks in the kitchen, and the brass handles of all the doors,—not only of his own house, but of the adjoining house. In August, 1857, this gentleman was seized with fever, which he had so severely as to be confined to his bed for four weeks. During his illness a nephew from another part of the country visited the next door, but had no intercourse with his uncle. The nephew returned home and was directly afterwards seized with fever. After the gentleman's recovery, a shop-girl was also seized with fever, which went through precisely the same course. In this instance the water-supply was good, and removed from any source of contamination."

(II.) "At a village near Rochester was a small court entirely undrained; fæcal matters accumulated in it, and typhoid fever and scarlet fever were almost always present. At last the place was barrel-drained; the people remain in the same circumstances as formerly, and are personally as dirty as before, yet the diseases referred to have entirely disappeared."

(III.) "There are two parts of Odiham, one undrained and containing numerous cesspools, and the other well drained. Some years ago a smart epidemic of typhoid fever, proving unusually fatal, killing one in five, occurred in this town, and was almost entirely localized in the undrained part. In one house alone in this place, several cases occurred of uncommon severity. In this house a drain ran under the bricks of the floor, and charged the house with its emanations. In the same part of the town, where fever at that time raged so fiercely, out of three severe surgical operations, one of encysted tumour of the face, one of excision of the shoulder-joint, and the other of inguinal hernia, the two former were attacked with erysipelas without apparent cause. The tumour case nearly perished from profuse suppuration under the scalp, and the shoulder case, a man aged 62, did prove fatal."

(IV.) The following instance occurred in my own observation. In a neighbourhood of London remarkable for its healthiness, and resorted to in consequence of its good reputation in this respect, is a collegiate esta-

* The first, second, third, and fifth are extracted from "Malaria and Miasmata," by Dr. T. H. Barker.

blishment, which had been erected apparently with every regard to sanitary arrangement. The ventilation was perfect, and the house was by no means crowded. Fever, however, of a distinctly typhoid character made its appearance from time to time, proving fatal in some cases, and in others being very severe with protracted convalescence. At length an old bricked cesspool was found, of large size and quite full, communicating with a coal-cellar under the dining-room of one of the tutors. This was emptied of its contents and then filled up. Since this there have been no cases of fever. The water-supply was from the water-works.

(V.) "In the early part of 1849, Mr. Milner of Wakefield visited a number of prisons for the purpose of selecting convicts to be removed to Wakefield. Among the prisons so visited was Lincoln Castle. He there found thirteen men under sentence of transportation, twelve of them were then either suffering from fever, or were convalescent from attacks of fever. On inquiry it appeared that a block of cells constructed on the Pentonville plan had been built, and prisoners had been placed in them, he thinks for the first time, in October, 1848. By the end of the year almost every prisoner, who had been placed in these cells, was ill, and the greater part had fever; at the time of his visit on the 5th of June, 1849, the prisoners had all been removed from these cells. He examined the cells, and found them well built, dry, and provided with good arrangements for warmth and ventilation; they were also perfectly clean, and evidently had been kept so, when occupied. They were all provided with water-closets, which were clean and in good order. He then inquired about the drains, and the mystery was at once solved. There were no drains from the prison, but all the sewage from these cells was conducted into a closed cesspool, which he was most carefully assured had been made *quite air-tight*. The result of this arrangement was that when the tension of the disengaged gases in this air-tight cesspool became greater than the pressure of the water in the syphon trap of the water-closets, large quantities of these gases escaped into the cells, as one of the prisoners told him, 'with a noise like thunder, and a stench that would poison the devil.'"

(VI.) Towards the end of July, 1873, a severe outbreak of typhoid commenced in the West End of London, chiefly in the parish of Marylebone. Before it had existed three weeks, more than 250 cases, occurring in 106 families attacked, were reported; a number which probably does not at all adequately represent the extent of the mischief done. Amongst the families invaded by the disease were those of many eminent medical men. Their drainage and water supply were found to be faultless;

where, then, did the typhoid poison come from? Soon it became noticed that all the affected families were supplied with milk from one dairy: the milk-woman on going her rounds naïvely remarked that "wherever she went with the milk there seemed to be some one ill." At length it was conclusively proved* that the disseminator of the disease was the milk of this particular dairy,—a dairy that had held and deserved a high character for good management. After minute scrutiny into all the facts of the case and a searching inquiry instituted at all the eight farms from which the dairy company derived its supplies, it was discovered that on one of them (Chilton Grove) a farmer had recently died of typhoid fever. The water had become contaminated by leakage of sewage, containing the typhoid poison, from some faulty drain or cess-pool into a well. But how did the water get into the milk? There appears to have been no reason to suspect that the milk was watered; the mere *washing* of the dairy utensils with the contaminated water would entirely account for all the disaster that followed, showing the infinitesimal amount of poison that under favouring circumstances is sufficient to originate wide-spread disease. The dairy company stopped issuing their milk as soon as ever it was evident that it was the source of the epidemic, and the occurrence of fresh cases very speedily ceased.

It seems that very little blame could be attached to the management of the dairy company.

This was the fifth epidemic that had clearly been produced by the same cause within the space of a few years: a fact that is doubtless partially attributable to the especial energy with which typhoid fever poison appears to ferment and multiply in milk.

Typhoid fever is thus shown to be an altogether preventible disease: but when even the heir to the British throne is brought by it to the very gates of the grave, how shall lesser mortals hope to escape? Thousands of lives are sacrificed annually in this country alone, to ignorance, carelessness and apathy. To ignorance, because three-fourths of the population have yet to learn that foul-smelling, ill-constructed, and rotten drains mean poison, disease and death; to carelessness, because those who know it well continue in evil-doing, since to do well and to examine into and rectify all that was

* See *Lancet*, Aug. 16, 1873.

wrong would be a great deal of trouble, and probably of expense also; they say they "will look into it some day," and they "hope that meanwhile no great harm will be done." And to apathy also are lives sacrificed, since there are those, to their shame be it said, who take no interest in the subject whatever, or in any other subject affecting the well-being of the community at large, and positively do not care whether typhoid spreads or not, so long as it does not affect them personally. My readers! the existence of this disease—at any rate to its present extent—is a great and crying evil. We may look to legislation to do much to remedy the existing state of things, as we trust that the working of the present, or of any future, Sanitary Act will do; but we must look to ourselves to do more. He who poisons his fellow-creatures by the effluvia or by the actual contents of his drains, he whose carelessness and wanton uncleanliness is a source of disease and death to others, is as guilty of homicide as the desperate mother who abandons her child of shame, or as he who in war-time poisons the water-springs; and should be as amenable to punishment. The old proverb exhorts "every man to sweep his own door-step:" surely a necessary corollary to this is that every man should look to his own drains.

Is it infectious?—On this point there is some difference of opinion in the profession; but the weight of evidence and the observations of those men who have had the best opportunities of judging, and who have used those opportunities most carefully, tend strongly to the decision that *it is not*. Some are of opinion that infection is given off from the evacuations of the patient. Whether this is or is not the case, we have not yet sufficient evidence by which to decide. But in so important a matter, it is our obvious duty to guard against every possibility of danger. We must reverse the good old rule of English law

courts, which holds everyone to be innocent till they are proved guilty, and we must treat the evacuations as guilty of conveying infection, until they are conclusively proved to be innocent. Therefore cause every evacuation to be *immediately* disinfected and disposed of in the manner directed on page 260.

Varieties.—There is a mild and a severe form of the disease; but they differ in degree rather than in kind.

Period of Incubation.—This is very uncertain. It is probably never shorter than one week, nor longer than three weeks. The medium of a fortnight represents the average period.

Symptoms.—(1). *Of the Milder Variety.* Typhoid fever comes on very gradually. The child loses his spirits and seems heavy and listless; he has no appetite, but is very thirsty, and becomes fretful and miserable. Though so drowsy in the day time as to be perpetually going off to sleep (and I have known a child to do this three times during one meal), he is not so at night, but is restless and gets up unrefreshed. In a day or two, other symptoms are superadded. The skin is very hot; hot to the hand, and showing a high temperature (about 104° Fahrenheit, perhaps) by the thermometer. Sometimes it is dry, sometimes perspiring. The tongue is covered with a creamy fur, except at the tip and edges which are clean and red, and the breath smells offensive. The pulse is nearly always quick from the outset, usually too quick for an unprofessional person to count. The water is very scanty and very highly coloured, and becomes thick on standing; the bowels are generally very loose, giving thin, pale, ochrey or drab-coloured motions, of a very offensive character. Loud gurgling sounds in the bowels are another symptom of the disease; so is the appearance of a hard swelling or lump on the left side, just beneath the ribs, caused by enlargement of the spleen. The breathing is

usually quickened; and a short, loose cough is often present. Except in the morning and during the middle of the night, the child is always drowsy and lying in a stupor-like sleep. The improvement that occurs in the symptoms as morning comes on, which is characteristic of all favourable cases of fever of any kind, is perhaps most noticeable in typhoid. The temperature that on the previous evening rose to 105°, perhaps in the morning has sunk to 103°; the pulse is less rapid, the skin is cooler, the mind is clearer, and the countenance less anxious and distressed; the child altogether seems brighter. This regularly recurring mitigation in the morning is a favourable symptom. With the commencement of the second week, the symptoms become more severe, and the rash (characteristic of the disease) begins to come out. It consists of rose-red spots coming out chiefly on the belly, chest, and back, and sometimes on the legs and arms. "This successive daily eruption of a few small, very slightly elevated rose-coloured spots, disappearing on pressure, each spot continuing visible for three or four days only, is peculiar to, and absolutely distinctive of, typhoid fever." (Dr. Aitken.) The rash should be carefully watched for, as in young children it is sometimes so pale or so scanty as to escape notice. During the second week, the little invalid has very restless nights, often waking with a scream, and moaning and seeming much oppressed during sleep. There is often also slight and transient delirium. The thirst increases, and some slight and occasional vomiting may now occur. The skin is dry, harsh, and burning; the tongue begins to get brown in the centre, and the child continually picks at his nose and lips; often till they bleed. The bowels become more and more relaxed, and the motions appear like yeast, fermenting and most offensive. The stomach may also become somewhat distended, and tender on pressure. There is great pros-

tration of strength, and wasting. At this time (towards the end of the second week) the child seems very ill indeed; at the eve of recovery, the disease is fiercest. Shakespere seemed to know something of this :—

> "Before the curing of a strong disease,
> Even in the instant of repair and health,
> The fit is strongest. Evils that take leave,
> In their departure most of all show evil."

Between the twelfth day and the sixteenth, the disease usually begins to mitigate. But recovery is slow, and interrupted now and then by partial relapses; and though the condition of the bowels continues unhealthy and the thirst and disinclination for food remain, nevertheless, day by day the little patient gains some ground. The emaciation and debility, however, are pitiable, and out of all proportion to the severity of the attack. The average duration of the fever is about twenty-three days.

(2). *Of a Severe Case.*—All the symptoms mentioned above as likely to appear in the first week are intensified, and a good deal of deliriousness occurs at night. As the second week is commencing, the restlessness and wandering of mind increase; the tongue becomes dry, brown, and glazed; the belly is distended with gas and tender to the touch; the diarrhœa is continuous and exhausting, the motions as well as the water being passed (unconsciously) into the bed. The mode of appearance of the rash is much the same as in a mild case, but perhaps it comes out a little sooner. The severity of the symptoms does not remit much, if at all, towards morning, nor does the temperature greatly fall. At the end of the second or beginning of the third week, when the child is lying prostrated, emaciated, drowsy, and often unconscious, and seemingly in a very far-gone condition, the change for better or worse usually takes place.

If the change is for the worse, the temperature rises, the pulse gets faster and weaker, the tongue, teeth, and lips become coated with a black incrustation, the belly becomes enormously distended, the stupor is more profound and the prostration more extreme. In this miserable state the poor little one may often linger for many days, before death comes to his release.

The part of the body that suffers most injury in this disease appears to be the lining membrane and the glands of the smaller bowels. During typhoid these become more or less extensively inflamed and *ulcerated*. It is to this fact that the characteristic diarrhœa, and the tenderness and the distension of the belly are due. The ulceration may be slight, or it may be so severe as absolutely to perforate the bowels. In the last case recovery is impossible.

Distinctions.—Typhoid is a difficult disease to identify in its outset. It comes on just like any other fever, and goes on for some days without showing any characteristic symptom. No more definite instructions to aid the judgment of unprofessional persons can be given than the following:—If a child becomes ill with the earlier symptoms noted above,—if at the time when they might be looked for, the characteristic symptoms of the fevers that have been previously described do not appear,—if the temperature, always high, rises in the afternoon and falls towards morning, and if by the third or fourth day it has reached 104° or 106°,—if diarrhœa supervenes, and if the tongue has a creamy fur at the back and centre, while clean and red at the tip and edges, you may be tolerably sure that typhoid is present. The appearance of the distinctive rash from about the sixth to the tenth day, makes you quite sure of it.

Prospects of the Case.—There is no case so mild, that it is free from danger, and there are but few cases so bad that they cannot recover. The large majority of cases among children recover. Dr. Murchison states that in cases occurring under ten years of age, only 14½ per cent., or

about one in seven, die: and probably this estimate is too high. If *all* cases were taken, the mortality would not be more than one in ten. *Favourable Symptoms.*—A mild onset of the disease; marked remittance of the symptoms towards morning; amenability of the diarrhœa to remedies, or better still, its occurrence to only a trifling degree; absence of much tenderness of the belly; absence of much delirium; falling of the temperature; diminution of the pulse, and cleaning of the tongue towards the end of the second week. *Unfavourable Symptoms.*—The converse of all the above; great distension and tenderness of the belly; excessive restlessness; early and great prostration of strength; the occurrence of early or of much delirium; a dry, brown, and glazed tongue; a high temperature unintermittingly maintained; and a profound stupor, or worse still, a condition from which Sir W. Jenner (who calls it "coma-vigil") says he has never seen a recovery, when the patient lies with his eyes unwinkingly wide open and staring with an unmeaning gaze, but profoundly unconscious.* Vomiting after the end of the second week is usually of very bad omen; so is bleeding from the bowels; and if a relapse occurs after the twenty-first day, it will go very hard with the patient.

Mortality.—In England alone, in the year 1870, there were 3,470 deaths under fifteen years of age from this noisome pestilence; and probably this number does not nearly represent them all, as cases of Typhoid are sometimes mistaken, and deaths from it are imputed to other diseases. Taking the average as one death in ten cases, this number shows that there must have been at least 34,700 children afflicted with this disease;—afflicted, let us re-

* This condition is more often seen in adults than children. A case that occurred within my own knowledge, lay in this state for some days, and *recovered*.

member, with a *preventible and unnecessary* disease,—one that might have been avoided.

Nursing.—Whether entire isolation of the patient, and the whole routine of disinfection should be practised or not, must be left to the medical man in charge of the case; but at any rate, the evacuations of the patient should be thoroughly disinfected directly they are voided, and the water-closet (or any other place) where they are emptied should be used by no one whilst the illness lasts. The "Nursing Plan" should be used.* As soon as any suspicion arises that Typhoid is the malady to be dealt with, the child should be put to bed and all solid food discontinued. As the bowels are so much affected by the fever, the diet requires very careful regulation. "Little and often" must be the rule, and the most suitable articles of food will be cold

* Though this work is not intended primarily for the rich, yet the following observations on nursing may prove of use as tending to the comfort of a household. When the disease has been defined, and it is therefore known that very careful and assiduous nursing will have to be persevered with for at least a month, let *two* nurses if possible be procured, and placed on an equal footing, one for the day and the other for the night. If one nurse is procured at first, and after a week or ten days it seems desirable from the heavy work that there should be a second, both the doctor and friends will find it very difficult to introduce her. The first nurse thinks she is not trusted, she wishes to "see the case through," and often declares she would rather give up the case altogether than have help. It then becomes cruel work for one; and I have seen a faithful nurse go on night and day for weeks, till her legs and feet swelled from her standing about. Such a condition, together with the physical fatigue, renders her less capable of giving sufficient attention to the case; whereas if there are two from the first, neither will feel aggrieved. Moreover, every nurse should have time allowed her to be an hour at least in the open air, besides five or six hours for sleep, and occasional opportunities for a bath and for change of dress; she will then return fresh and cheerful to the bedside. Friends may take her place for a time, but even a mother, from her very anxiety, is not so good as a trained nurse who is accustomed to watch and recognise any change in the symptoms, and to report on such to the doctor.—H. S.

milk, arrowroot and milk, rice milk (No. 23, Appendix A), chicken broth (No. 14), mutton broth (No. 15) or beef-tea, if the child will take it (but it is only in very mild cases that he will); puddings of corn-flour, sago or ground rice and milk may be sparingly allowed. There is no objection to his having cold water to drink in moderation, provided he is not perspiring much at the time: he may also have one of the fever drinks, Nos. 24 or 25 (Appendix A), or now and then a little of Prescr. 13 as a cooling draught. There is no objection to the use of weak tea or coffee for a child of over four years old; they promote the action of the skin, and tend to lessen the wasting that always occurs. It is seldom, if ever, necessary or right to give stimulants during the first week, but they are very often needed later on in the disease, when there is great exhaustion, weakening diarrhœa, a brown dry tongue, a persistently high temperature, or (its opposite) a cold and clammy surface. The quantity must be apportioned by the doctor in charge; the best forms are brandy, or a dry port wine given in the arrowroot, or if there is extreme prostration, some good champagne. It is surprising to see how much stimulant, children, in an exhausting illness like this, will not only bear, but be a great deal better for. The same symptoms that call for stimulants require also to be met by strong and concentrated nourishment, such as Nos. 16 or 17 (Appendix A).

The child should lie either with a large napkin pinned on constantly, or upon a thickly-folded sheet, or perhaps both may be used at once; for usually after a few days of fever, the motions begin to escape involuntarily, and then endless trouble and annoyance is caused, if the bed and bed-linen are not preserved pure. If there is much pain or any tenderness of the stomach, it may be relieved by covering the surface of the belly with a large and hot, but light, linseed or bran poultice, to be repeated if necessary; or

else let folded flannel steeped in hot water and wrung out, on which a very little turpentine has been sprinkled, be applied with the sprinkled side to the skin. When the heat of skin is very great and distressing, cold sponging or the "Shallow Bath" (see pp. 183 and 184) will afford much relief, often allaying restlessness and producing sleep. With regard to the treatment of the head, it is best not to shave it, but to cut the hair very close; then if there is great heat of head, or delirium with excitement, the ice-bladder (page 185) must be used.* Emaciation proceeds very fast, and the vitality is very low towards the latter part of the fever, therefore redness and tenderness of the skin of all those parts of the body which are in contact with the bed must be carefully looked for. If they are not attended to, most troublesome and grievous bed sores will be formed, a disgrace to the nurse, and an additional danger and suffering to the poor child. As soon as any such redness or rawness of the surface appears, let the place be frequently bathed with brandy and then covered with soft wool, or at once covered with a piece of soft, thick soap plaster, spread on linen, calico, or "moleskin." If this gets into "rucks," it must be changed for another piece smoothly applied.

Towards the critical time of the fever, or indeed at almost any time after the end of the first week, the child will usually strongly resist taking the necessary nourishment.

* After the fever the hair usually drops off in large quantities; and then the question arises as to what is to be done to stimulate its growth again. Keep it cut very close indeed, and use the following liniment all over the scalp every night and morning, dabbing it softly in with a sponge, not rubbing it with hard friction, or what little hair is left will be rubbed off. Take of sal volatile, 1 ounce; of eau de Cologne, 1 ounce; of glycerine, 1 ounce; of tincture of cantharides, half an ounce; of rose water four and a half ounces; mix. If the child's physical condition continues to improve, and if these measures are perseveringly used, the hair will soon return.

But the mother or nurse must see that it is done, and at the regular times, unless some more important circumstance, such as sound natural sleep prevents; it is false kindness to be irresolute or yielding now, though the mother's heart will teach her to use all means of persuasion and endearment before recourse is had to gentle force.

In this disease there is great danger of relapses, which, when they occur, are especially perilous; so that the convalescence of the child requires very careful management. Let the change back to solid food be *very* gradual and almost imperceptible; the irritable and often ulcerated bowels will not bear anything but what is of the simplest and most easily digestible kind. "A *single error of diet* will not only bring back the diarrhœa, but may prove fatal." (Dr. Ellis.)

After sufficient strength is gained, change of air will greatly conduce to complete restoration.

Treatment.—(See note on p. 257.) Never give any purgative medicine; it would be most dangerous: the bowels will not bear it. To improve the condition of the blood, some such medicine as Prescr. 22 may be useful. If the fever is very distinctly remitting, *i. e.*, getting worse at night and much better in the morning, a little quinine often does good (Prescr. 23). To hold the diarrhœa in check, some such preparation as Prescr. 20 will be useful; or a sedative and soothing injection may be used, such as Prescr. 3, in the same proportions according to age. As the disease progresses and culminates, it will probably be necessary to support the strength by a combination of a stimulant and a tonic, as in Prescr. 14. The symptoms that call for this are much the same as those, which were mentioned as requiring wine, brandy, and strong nourishments.

Complications.—Those that may happen are many and dangerous. Those that are most usual and most to be dreaded are Hæmorrhage (or bleeding) from the bowels: Perforation of the bowel by ulceration; Bronchitis or Inflammation of the lungs. No instruction would be of the least use to unprofessional persons on such conditions as these imply.

RECAPITULATION OF SOME OF THE FOREGOING FACTS.

Disease.	Period of incubation or breeding.	Rash comes out.	Rash begins to fade.	Other leading symptoms.
Scarlatina	Four to six days.	Second day.	Fifth day of the fever.	Sore throat; peeling of skin (towards end).
Measles	Ten to fourteen days.	Fourth day.	Seventh day of the fever.	Severe "cold in the head" and irritable cough.
Chicken Pox ...	About seven days.	Usually second day.	Crusts form on fifth day of the eruption, and fall two or three days after.	Sharp onset of fever, usually soon followed by sudden fall, and appearance of eruption.
Small Pox	About twelve days.	Third day.	Scabs form on ninth or tenth day of the fever, and fall on the fourteenth.	Severe onset of fever, vomiting, and (in older children) backache.
Typhoid Fever	Varying from seven to twenty-one days.	From eighth to twelfth day.	Very variable. *Mild:* Five to seven days after appearing. *Severe:* Up to twenty-first or twenty-eighth day of the fever.	Rapid rise of temperature, with subsequent marked remissions of fever. White tongue with red edges. Gurgling of the bowels. Diarrhœa.

DIVISION II.

Diseases of the Constitution Generally.

A NOTICE of certain morbid conditions of the system has been introduced thus early, because there is scarcely any disease that can occur during infancy that may not be considerably affected by the presence of two of them—I refer to scrofula and tuberculosis. Thus, inflammation of the brain in a tubercular* child is a very different thing from the same disease in a healthy child: ophthalmia, or inflammation of the eye, occurring in a strumous child, shows very different symptoms to what are seen when it attacks a healthy child. The engrafting of ordinary disease upon the latent or apparent taint of scrofula or tuberculosis, increases the danger of the disorder, and produces a hybrid malady as the result; just as the grafting of the slip of one fruit tree upon the stock of another, will have a certain and definite influence upon the quantity and quality of the resulting fruit.†

Hence it is well to have some little information upon conditions that so often alter diseases, before we come to consider the diseases themselves.

But these vitiated states of the constitution are capable not only of modifying ordinary diseases, and of predisposing a child to the onset of these modified forms, but also of originating many serious and fatal maladies peculiar to

* The meaning of this term is explained on p. 325.

† "Certain species of Sorbus, when grafted on other species, yielded twice as much fruit as when on their own roots."—Darwin, "Origin of Species."

themselves, of which consumption is one. It is very usual to hear all constitutional taints popularly spoken of under the one term, scrofula; this is of no great practical importance, but it is just as well to know that scrofula, tuberculosis, and rickets, are each of them *separate* and *distinct* diseases; the two former being in many respects the direct opposites of one another.

But a distinction must be made also between a condition of system having a predisposition to a given disease, and the disease itself. Now, to say of a child that he exhibits signs of a strumous temperament, means, that he seems a very likely subject to take on strumous disease on the occurrence of any slight exciting cause; but to say that he suffers from strumous abscess or strumous inflammation of the eye, implies that he actually *has* the disease in one of its forms. Therefore, scrofula and tuberculosis are, strictly speaking, morbid conditions rather than real diseases. "It is probably not an exaggeration to say that nine-tenths of the children we are called upon to treat, exhibit in some form or other unmistakeable traces of a taint"* of constitution, due to the presence of one or other of these morbid conditions. How necessary it is then that we should be able to recognise these predispositions to disease when we see them, and should know something of their tendencies!

* Dr. Tanner, "Diseases of Infancy and Childhood," edited by Dr. Meadows. I think the proportion of nine-tenths quoted here is too high for general practice, though it is probably correct as regards hospital practice.

CHAPTER VIII.

ON SCROFULA.

Other Names.—It is also called "Struma;" and popularly, "King's Evil."

Causes.—(1) It is distinctly hereditary: the child of one strumous parent stands a bad chance of being strumous; but the child of *two* strumous parents, is fortunate if he escapes the taint of blood. If, in addition to hereditary predisposition, other causes (now to be named) are in operation also, the prospects of the child are indeed gloomy. (2) Deficiency of light. (3) The constant breathing of a close, foul, unventilated atmosphere. (4) Bad food; insufficient in quantity or improper in quality. (5) A cold, damp, and variable climate. (6) Want of exercise in the open air, or of recreation of body or mind.

Physical Indications of its Presence. Strumous children are found to conform more or less closely to one type. Broadly outlined, the picture presented is somewhat thus:—Light or red hair, but most usually indefinite in colour, slightly 'muddy' instead of golden or auburn, and often long and clustering, but frequently coarse; the cheeks often have too much rather than too little colour, but if the complexion is pallid, it is usually freckled also; the face is plump and rounded, but the skin is thick and not clear, and the expression is heavy and inanimate. The lips are thick, and the upper one peculiarly so. The eyes are generally large, and light in colour, with dilated pupils: they are also very often weak and watery. The nose is large and rather

coarse, and the nostrils wide open, from whence there is often a thin discharge; the edges of them are thick and apt to be red. The chest is often narrow and projecting, or otherwise misshapen; the stomach is protuberant and hard; and the glands are distinctly to be felt under the skin, especially in the neck and groins. The joints are large, and the flesh is flabby and cold. The child is usually backward both in body and mind, the undue size of the head betokens no great intelligence: and the whole temperament is sluggish and dull.

Prevention is better than cure; and nowhere is this adage more truthfully applied than in the case of Scrofula and Tubercular disease. We *may* prevent them,—with care, readily; but it is much to be doubted if we can cure them by any means. The obvious means of prevention lie in guarding against all the causes of the malady. Let us consider to what extent this may be done.

Hereditary transmission is at once the greatest and the most difficult cause of struma to deal with. We cannot hope, in the present state of knowledge, that anything doctors can say will prevent the marrying and giving in marriage of strumous couples. A declaration of the existence of scrofula in bride or bridegroom or both, is not a sufficient cause on which to forbid the banns. Until more is known of the frightful evils that result from unions of this kind—and probably long after then—young men will continue to woo strumous brides, and young women will plight their troth to strumous lovers, without staying to inquire whether the beloved one has a clean bill of health in this respect or not. The existence of a constitutional taint on either side has no power to poison the joys of the enamoured, or to tarnish the golden hopes of fortune-hunters. Meanwhile, all but the most reckless parents are very careful to prevent their sons and daughters from entering by marriage into families in

which a predisposition to lunacy is known to exist; and they act wisely, nor are many hearts broken thereby. Let them but learn to act as wisely with regard to these widespread and deep-rooted plagues also, and what incalculable suffering, misery, and destruction of life would be averted! For there can be no doubt that though lunacy may count its victims by the thousand, those of Scrofula and Tubercular disease can only be numbered by the million.

Marriages of relations, such as cousins, or much intermarriage within a very small circle, are apt to produce strumous offspring. If either the father or mother of an expected infant suffer from any constitutional taint,—

The Health of the Mother whilst Enceinte must be duly cared for; more especially if both father *and* mother be affected. She should avoid everything approaching artificiality; she should live on a plain but nourishing diet, eschew late hours and heated rooms, take regular and sufficient exercise in the open air, if possible practise cold bathing, and wear warm clothing.

The Nursing of the Child.—Advice on this point is given on page 20 (6) and on page 22 (4).

Light. Avoid keeping the child in dark rooms. The nursery and schoolroom should be the brightest and most cheerful rooms in the house. If the sun pours into them, so much the better. Let the child with a predisposition to struma be much out of doors, especially in the sun light; in a word, reduce to practice the remarks made on the health-giving influence of Light, on pp. 113 to 119.

Air. There are some who believe that a foul and habitually unventilated atmosphere is *by itself* sufficient to produce scrofula. It certainly aids its production very materially. The disease is always most common in its various forms in close, densely populated neighbourhoods. Let all the directions on the ventilation of the children's rooms (on

pp. 106 to 112) be strictly carried out. But in Air we possess more than a preventive; in some varieties it is an actual remedy. Let a child in whom strumous disease has broken out, exchange the stifling town for the open, breezy country side, or, better still, for the fresh bracing air of the sea-coast, and a wonderful improvement in his condition will soon be apparent. In these diseases Sea air and Sea bathing are worth more than a whole pharmacopœia of medicines. Change of air,* of almost any kind, so long as it is not obviously for the worse, is always useful (see pp. 176 to 179).

Food.—The food of infancy has just been adverted to under the head of *Nursing*. As the child grows older, let his diet be plain, nutritious, and digestible, and do not let him ever eat much at one time, but give him small and more frequent meals. Let him take plenty of good fresh milk with the cream on; nothing is more wholesome. It is the opinion of many physicians that fatty matter given to children with a marked strumous tendency is beneficial, provided that the digestion is able to deal with it. With this view they recommend suet and milk (No. 20 Appendix A) amongst other things. The diet should contain a large proportion of animal food, including milk and raw eggs as such, plain roast meat with gravy, plain soup, strong beef tea or mutton broth, also well-mashed potatoes and a fair amount of farinaceous food, but not too much, since if the digestion is weak (and it usually is), this is likely to produce acid. Carefully regard the advice given in the paragraphs on the Diet of Childhood (pp. 60 to 77).

Cod Liver Oil and Iron are two articles which usually are considered as medicines, but which, when given in this condition of body, are really Foods. In a case of distinct pre-

* The seaboard of the Isle of Thanet is almost free from indigenous scrofula.—H. S.

disposition to Scrofula, and even when this has passed into disease, they are most beneficial when rightly used. You ought not to give cod-liver oil to a child with an acid or irritable stomach. This must first be put in order, then begin with the oil. At first it must be used in very small doses, half a teaspoonful twice a day; and when the stomach is accustomed to this, it may be gradually increased to one teaspoonful twice or three times a day. More than two teaspoonfuls three times a day can very seldom be digested; and if more *is* given than can be digested, it will pass unaltered through the bowels and appear in the motions, perhaps causing diarrhœa also. When a child is taking the oil, the stools should be occasionally inspected for undigested oil, and if any is found, the quantity given must be lessened. The best time to take it is after meals, and the best form is given in Prescr. 24; or it may be given floated on milk. If it excites nausea and deranges the stomach, it must be discontinued for a short time; but as a rule children bear it well and even get fond of it.* Iron† is best given to children in one of its milder preparations. *Parrish's Chemical Food* (or syrup of superphosphate of iron) is very good; some cases receive more benefit from the *Syrup of Iodide of Iron*, and yet others fare better on the *Citrate of Iron wine* (see p. 175).

Clothing.—If the mother faithfully follows out, both in the letter and the spirit, all the advice on this subject given on pp. 82 to 90, she may rest satisfied that she has done all in her power in this matter.

* If an infant cannot bear oil by the mouth, an excellent plan is to rub into the skin a tablespoonful of the oil night and morning. In a case of emaciation in an infant from persistent sickness and diarrhœa, I stopped all food except by the above method, and the child not only recovered, but got fat.—H. S.

† On the action of iron, see p. 173.

Exercise.—The utmost pains should be taken to strengthen the body and develop the frame by judiciously regulated exercise. The exercise should be *daily*, and, when the weather admits of it, out of doors. It should be made interesting, and should not be a dull and irksome routine; but *it should not be allowed to be continued to a point of much fatigue;* for it must be remembered that the strumous constitution has only a very feeble rallying power, and, if much depressed, is difficult to energise again. (See also Section on Exercise, pp. 120 to 132.)

Avoidance of Cold and Damp.—This includes all those precautions against cold winds, damp conditions of the atmosphere, and exposure to night air, that have already been mentioned, and which every sensible mother would put in force for a healthy child, much more for a delicate one. It also includes the question of Residence. Parents who are aware of a strumous taint in themselves or in any of their children, if they are at liberty to choose their place of abode, should do it with the remembrance of this fact before their eyes. They should try and find a place *in the country or by the sea-side*, protected on the North and East, not flat, damp, or marshy, but high and well drained, and, if may be, on a sandy, gravelly, or chalky soil.

Those whose children have an unmistakeable inclination to Strumous disease, if their means will permit, will do well to take them during the winter months to some place justly celebrated for its anti-scrofulous climate; Ventnor, for instance, Bournemouth (East cliff), Torquay, Penzance, Nice, Mentone, or Rome. Lives that are altogether despaired of in our damp and variable climate are thus constantly saved.

Attendance to Ailments.—The mother of sound and healthy children can easily be too solicitous and fussy about their little occasional ailments, but the mother of scrofulous

children cannot. She must never forget that she has to watch over an unhealthy constitution, in which a latent poison is ever ready on any slight cause to break out and work its disastrous effects; therefore on every occasion when she has reason to suspect that aught is going wrong, be it ever so little, she must at once seek more reliable skill than her own, and send for her medical man.

Education.—In struma not only is the development of the body backward, and its habit dull and lethargic, but the condition of the mind is the same. No good, but absolute harm is done by attempts to push the child on in its scholarship. School must not be begun at all until the body has gained some strength; and with every child who shows a predisposition to this malady, it had better be deferred till a later time than is usual with healthy children. When lessons do begin, they should be light and of no long continuance. Some badly managed girls' schools, by reason of the perpetually recurring classes and preparation of lessons, by the close rooms, by the strained and stooping position of the girls, and by the want of physical recreation or of anything worth calling exercise, become very hot-beds of these constitutional diseases.

Such strumous disorders as it may be necessary to speak of, will be found in their places in other parts of the book.

CHAPTER IX.

TUBERCULAR DISEASE.

Medical Name.—Tuberculosis. I am sorry to be obliged to use so unfamiliar a name for this disease, but there is no popular or English word that accurately expresses it. It has received this name on account of the fact, that when this morbid condition of body exists, a strong tendency is shown, on the application of any exciting cause (and sometimes seemingly without any), to the deposition of an unnatural substance called *tubercle* in various organs of the body,—notably in the lungs, in the membranes of the brain, and in the glands of the bowels.

What is *tubercle?* The answer to that question would be both long, unintelligible, and unpractical, so a very brief and popular explanation must suffice. When it occurs in masses large enough to be seen (after death), which it often does, it is a yellowish-grey cheesy kind of substance; it may be present in microscopic atoms throughout the texture of many organs at once, or it may be dotted about in pieces the size of a millet seed, or it may be found sometimes as large as a small bird's egg. It is a morbid product deposited from the blood in the situations where it is discovered; the locality of its deposition having been determined by the occurrence there, from some cause, of a low kind of congestion or inflammation. The havoc that it works in the organ that it invades is sufficiently evident, when I tell you that the formation of tubercle in the lung constitutes the deadly disease, Consumption.

Causes.—It is even more decidedly hereditary than Scrofula, but the causes stated as producing that diseased condition are much the same as those that produce this.

Physical Indications of its Presence.—I stated a few pages back that Tubercular Disease was in some respects the opposite to Struma; and this is nowhere more noticeable than in the peculiar physical conformation that distinguishes each disease. Compare them. The tubercular child is more often dark than fair, with fine and silky hair, not thick. His skin is very fine and semi-transparent, so that the blue veins show distinctly through it. The face is oval, with bright and intelligent eyes, often dark, and with dilated pupils and long drooping lashes; the nose is sharp, long and fine, and the nostrils contracted; and the expression is lively and intelligent. The limbs are straight and delicately moulded, the joints small, and the body spare and slight. There are also certain shapes of the chest indicative of the tubercular condition:—(1) the long and almost circular chest: (2) the long and flat or shallow chest: (3) the long and pigeon-breasted chest. The stomach is usually small, firm, and flat. The teeth are often developed early, teething beginning as early as the 4th, 5th, or 6th month. But the child is uniformly precocious, mentally and physically; a fact which often causes great pride and delight in the hearts of parents, but which the more far-sighted physician recognizes as giving reason rather for watchfulness and anxiety. The nervous system of such a child is usually sensitive and delicate.

Prevention.—In a popular work like this, no distinction need be drawn between the prevention of Scrofula and Tubercular disease; therefore on this point see page 319.

Tubercular Diseases.—Tubercle may attack almost any organ of the body, or portion of the frame, therefore it will obviously be impossible, in the limits of this book, to mention any but the most common and destructive forms of the malady; notices of which will appear in their respective places.

CHAPTER X.

ON RICKETS.

Medical Name.—Rachitis. The Germans call it Englische Krankheit, or the English disease, which points to the fact of its being a commoner malady in this country than elsewhere.

Causes.—It is probably not hereditary in the strict sense of the word, but that the state of health of the parents, especially of the mother, at the time of the conception of the child, exercises a great influence, there can be no doubt. Some have affirmed that too early marriages, and intermarriages, conduce to the production of a rickety offspring; and this is probably true.

The following causes are tolerably well ascertained:—(1) A low and weakened condition of the health of the mother at the time of conception, or during pregnancy, occurring from any cause. It is usually the youngest children of a family that are rickety; if the first or second child turns out so, there is a strong probability that every succeeding one will be.* (2) If the mother continues to nurse her infant after her monthly periods have recommenced, it is very apt

* Sir William Jenner thus accounts for this. "Among the poor, the parents are generally worse fed, worse clothed, and worse lodged, the larger the number of their children; for the man's wages remaining stationary, the calls on his means are increased. And among the rich and the poor alike, the larger the number of children, the more has the mother's constitutional strength been taxed, and the more likely is she to have lost in general power."

(especially if it has any predisposition that way) to become rickety (see p. 29). (3) The improper and unsuitable feeding of infants is a most effectual cause. The noted French surgeon, Trousseau, states that of one hundred rickety children, ninety-eight were either never suckled at all or were weaned very early; and the experience of most medical men goes to confirm the belief, that the absence of breast-milk in infancy is a strong predisposing cause. On this point also, the information given by the table on page 19, as to the influence of nursing on development, is valuable. On the other hand, I believe that the ninety-eight rickety children, above named, owed their malady quite as much probably, to being badly and injudiciously hand-fed, as to their not being suckled. It is not hand-feeding *in itself* that is so deleterious, as *ignorant* and *reckless* hand-feeding. (4) Certain conditions also which predispose to other constitutional diseases, such as the constant breathing of impure air, deficiency of light, dirt, cold, and, especially, exposure to damp and moisture.

Nature of the Disease.—When a child is born, although the ossification (or hardening) of his bones has commenced, it is by no means finished; and the whole skeleton is much softer, more cartilaginous and yielding than it afterwards becomes. But in Rickets this process of bone-formation, or hardening, is arrested; the system makes immense preparations for what it is going to do in the way of bone-making (as we see in the enlargement of the ends of the bones, by reason of the quantity of bony matter deposited there), but the fair promise is not carried out, nor the process finished. It *remains* unfinished also, and the bones yield and bend under the increasing growth and weight of the child, and pitiable deformities are the result.

Physical Indications.—The aspect of a child thus afflicted is so peculiar, that once seen it is always recognised

again. You do not need to examine its *crooked limbs* with their *large joints*, nor its *misshapen chest with the deep groove* down each side of the breastbone; the sight of its *broad, square face*, its *protruding forehead*, its *colourless skin*, its *large, mild and staring eyes*, its *quiet, sedate expression*, are quite enough to pronounce the disease to be Rickets. The unfortunate little one has no power to support itself like others, and the back may be curved. The head is always large, and the opening at the top of the head remains wide open long after it ought to be closed.* Such children are not necessarily thin or emaciated; they seldom are so at first. They cut their teeth very late.

Symptoms.—Children have even been *born* rickety; but this is very rare. Most commonly the disease is first noticed somewhere *about* the seventh month, when the teeth might be expected to become troublesome; or if not then, when the child begins to crawl or walk, the symptoms are evident. There are three symptoms that Sir William Jenner considers *distinctive*. (1) "Profuse perspiration of the head, or of the head, neck, and upper part of the chest, while perhaps all other parts of the body are dry and hot." (2) "The desire and the efforts made by the little patients to be cool, particularly at night." They kick off the clothes and throw their naked legs about the bed. (3) General tenderness. "He is tender all over," says the mother; "I can't think what has come to the child; if I do but touch him, he cries." And more than this,—he will often cry out with fear if anyone comes near, who, he thinks, is going to move him. All movement

* This opening is called a *fontanelle*. In the child before birth, there are six fontanelles—one in the middle line in front, one in the middle line behind, and two over each ear, one before and the other behind it. At birth in a healthy child they are all nearly closed, except the front one, which ought to be closed by about the end of the first year; but in a rickety child they frequently *all* remain widely open.

causes pain. The child who is about to fall a victim to this malady, is averse to play or to exert himself in any way; if he has walked, he is "taken off his legs;" he is often feverish, thirsty, and irritable; his bowels are irregular, and his abdomen tumid. He is very restless at night, and has a habit of *boring* his head into the pillow or of rubbing the back of it on the place where it rests. The skull seems longer and thinner than usual, and is tight and distended; the superficial veins are large and easily seen, and the head has very little hair on it.

To follow the symptoms of this disease into all its many stages and complications would be too lengthy a task, and unpractical in its results.

Prevention.—Evidently the way to prevent the occurrence of Rickets is to *obviate the causes* that have been shown to produce it.

Nursing.—The diet must be carefully selected according to the age of the child, in pursuance of the advice given in the Chapter on Diet. It is always right, at any age, to give plenty of milk. If the infant is suckling, the milk of the mother or the nurse must be examined, both as to quality and quantity, and, if defective, a better nurse must be got; or—as a last resource—the child must be brought up by hand (see p. 39). Asses' milk is often useful in this disease. Beef-tea, with stale bread-crumbs, may be given earlier than to healthy infants:* and the yolk of an egg beaten up with milk, twice a-day, will do good. In a word, give whatever nourishing food the child's digestion is able to deal with. (See Chapter on Diet.) The child must be as much as possible in the open air; he is too weak to walk and too tender to be carried, so he must be wheeled out in any little

* At from eight months to one year old, and as the second year progresses, a little meat may be given in addition; well minced or pounded up, as often there are no teeth.

easy carriage, whenever the weather allows. The air of the sea-side or of a dry and bracing part of the country is to be preferred by far: Scarborough, Lowestoft, or the East Coast during the summer; Brighton during the winter; or Tunbridge Wells at any time. Let the air in-doors be kept very pure and fresh. Bathing in chalybeate waters, or in warm or tepid sea-water, or a daily sponging with tepid water to which sea-salt has been added, will be very beneficial. If the child can bear it, the bathing should be preceded and followed by a light and brisk rubbing with a soft towel.

Treatment.—There are three chief remedies necessary,—iron, lime, and cod-liver oil. Iron is best given in the form of syrup of superphosphate of iron, or Parrish's chemical food, or steel wine (p. 175). Lime is best given as lime water, which may be taken in the milk; as directed in the table on page 25, only in larger quantities. Lime supplies one of the chief materials wanting to the building up and consolidation of the bones. Directions for giving cod-liver oil will be found on p. 322, and Prescr. No. 24 gives the best form for it to be taken in.

Mortality.—No accurate statistics are available. Rickets is "the most common, the most important, and *in its effects the most fatal*, of diseases which exclusively affect children."

DIVISION III.

DISEASES CLASSIFIED ACCORDING TO THEIR SITUATION IN THE BODY.

IN THE HEAD AND NECK.

CHAPTER XI.

ACUTE INFLAMMATION OF THE BRAIN.

It is impossible to treat popularly of such a severe and complicated disease as this is. I have only inserted a mention of it here, as it is by no means uncommon; and in order that the mother may recognise the insidious symptoms that characterise its onset, and may be sufficiently on her guard to obtain medical aid at once, or to take such simple measures as may mitigate the violence of the attack.

Medical Name.—The old name was Acute Hydrocephalus; the new and best name is Tubercular Meningitis.

Causes.—This is one of the terrible forms in which Tubercular disease (p. 325) attacks children. It does not occur in healthy children, but only in those who suffer from this constitutional taint. It is probably directly caused (or if not so, it is at any rate accompanied) by the deposit of particles of tubercular matter in the membranes in which the brain lies enwrapped.

Whatever causes would tend to lower the state of health of a tubercular child, would also lead to this deposit of

morbid matter, and consequently to the onset of the disease. It is sad enough that the most bright, intelligent, and precocious children should be the usual victims of this disease.

Premonitory Symptoms.—The child becomes petulant and depressed, inactive, and very difficult to please. Sometimes its spirits vary constantly. In the midst of its play it will suddenly stop, and run and lay its head in its mother's lap, saying that *its head aches*, or that it is *sleepy*. Sometimes it turns *giddy*, a feeling that you can only recognise by observing that all at once it stands quite still and stares around as if lost; after a few seconds it either begins to cry at the unaccustomed sensation, or seems to wake up, as if from a day-dream, and goes on playing again. If the child walks, he often *drags one leg* more or less. The *appetite* is capricious, but usually bad. "When apparently busy at play, it may all at once throw down its toys and beg for food; then refuse what is offered, or, taking a hasty bite, may seem to nauseate the half-tasted morsel, open its mouth, stretch out its tongue, and heave as if about to vomit." (Dr. West.) There is generally *vomiting*, but not oftener than two or three times a day. Soon it is noticed that the child is *intolerant of light;* he complains of the gas or the candle, or in the daytime turns his head from the light. All this time the head-ache is getting worse, and the drowsiness more constant. The bowels are constipated, and the *motions scanty and mud-coloured* and very offensive. The tongue is white in the centre, red at the edges and tip. The skin is not usually hot at first. Though the child is drowsy, he is restless and wakeful in his sleep; he lies with his eyes partially open, and grinds his teeth, and sometimes starts up with *a sudden, single, loud cry*. This precursory stage continues for not more than four or five days. It is not necessary for me to describe the future stages of the com-

plaint, since if the disease is not recognised and checked during these premonitory symptoms, all subsequent efforts at cure are well-nigh hopeless.

Prospects of the Case.—Always bad, even from the first; but if it has advanced beyond the first stage it is hopeless.

Early Measures to be taken.—If a child has had many threatenings of an attack of this disease, the mother should offer no objection if the doctor in attendance wishes to insert "an issue" in the back of the neck. It is a most useful *preventive*,—but not *curative*. Put the child to bed, covered lightly, shut out all noise of every kind, exclude all light, and keep the room cool and the air fresh. The vomiting will cause more or less difficulty with the diet; but the food should be *very light*, and given in small quantities and often. Cold or iced milk is very good, and often well retained. Very little food is necessary. Now, if ever, the application of cold to the head by the ice-bladder (see p. 185)* is most beneficial. If the hair is thick, it should be thinned and cut short, and the cold should be continuously applied, until amelioration of symptoms is produced; it must be repeated as often as necessity arises. If the doctor considers it necessary to apply two or three leeches, they must be put on as directed on page 191.

If medical attendance cannot be obtained without much delay, a more healthy action of the bowels can be procured by giving one or two doses of grey powder with rhubarb (Prescr. 26). *Purgatives* so given as to induce continuous relaxation (if the child will bear it) do great good. Prescr. 27 given once, and followed after three or four hours by Prescr. 28, which may be repeated at intervals, will answer.

* If ice cannot be got, use instead one of the freezing mixtures (No. 25) in Appendix of Prescriptions.

CHAPTER XII.

WATER ON THE BRAIN.

Medical Name.—Chronic Hydrocephalus.

Causes.—Occasionally the child appears to labour under the disease even in the womb; and at the time of birth the great size of its head may render its destruction *necessary* to the safety of the mother. Sometimes the disease appears almost immediately after birth, in which case it must be traced to some faulty condition in one of the parents—probably the mother; and sometimes it seems to be one of the forms in which tubercular disease may show itself. But what the special exciting cause of this accumulation of water on the brain may be, no certain knowledge yet exists.

Dr. Stark, of Edinburgh, writing to Dr. William Farr, in answer to some questions put by the latter, says, "In answering your second query I remarked on the greater tendency to deaf-dumbness and blindness in districts of the country where the children were suckled too long. I ought also to have added that *the tendency to brain-disease generally is increased by the same cause*, and there is far less of over-lactation" (or suckling too long) "in England than in Scotland in consequence of the child being put at so much earlier an age on spoon meat; and the table" (not given here) "appears to me to show the danger of over-lactation to the child, inasmuch as while in England only 44 die from hydrocephalus (or water on the brain) in every 10,000 infants, 71 die from the same cause in Scotland."

Nature of the Disease.—It generally manifests itself in early infancy, *i.e.*, before six months are over. It is a dropsy of the brain; and the water may exist inside the

brain, in its cavities (which it distends enormously), or outside the brain, between it and the skull. Sometimes it occurs both inside and out. If you examine a skull in any museum you will see that it is formed of several bones joined firmly together; but in the infant they are not joined together, or, if so, only very loosely, so that in this disease the ever-increasing volume of fluid within, forces them apart as the head becomes more and more distended, and soft interspaces can be felt between them. Sometimes the size of the head becomes monstrous. The skull of James Cardinal, who lived to be twenty-nine, measured *more than thirty-two inches* in diameter and contained a gallon of fluid.

Symptoms.—The enlargement of the head soon draws attention to the malady, but the face remains small and of the natural size; the disproportion between the two would be grotesque, if it was not sad. The face is triangular, the point of the triangle being the chin. As the head enlarges, the child rolls it from side to side, in weary search of support for the intolerable load: the skin of it is tightly stretched, and the blue veins are very visible; while the fingers may often feel the fluid fluctuating beneath the thin membrane that unites the parted bones. There is frequently drowsiness and intolerance of light. The little sufferer constantly loses flesh, though he may take the breast or other food greedily, and the skin hangs wrinkled on his emaciated limbs. His cry is hoarse; probably his legs are doubled up on his belly, and his feet crossed: perhaps he squints; and he is almost certain to be attacked more or less frequently with convulsions, which may ultimately carry him off. There is generally great loss of power, and often paralysis. The condition of the mind varies in different cases from complete idiotcy, to a state in which it seems hardly at all impaired. Cases vary very

much, and it sometimes happens that the general health is but very little affected.

Prospects of the Case.—Always bad; but this is not often a disease very quickly fatal. A child may suffer from water on the brain, and yet live to be carried off by some other complaint. Sometimes the sufferings of the little one are ended in a few months; sometimes it lives on in a kind of living death for a few years; but cases of recovery or of cure are very rare indeed. Teething is a very fatal time.

Treatment.—I can mention no treatment that has met with any great success, and certainly none that could be administered, under any circumstances, except by a medical man.

Prevention.—In a family where a predisposition to the disease has been found to exist, or whenever there is reason to suspect its approach in a child, prevention holds out much fairer hopes than cure. Put in force all the advice given on the prevention of Struma (p. 319).

Mortality.—In the year 1871, in England alone, 6,138 children under five years old died of this disease.

CHAPTER XIII.

SECTION I.—CONVULSIONS.

LET it always be borne in mind that convulsions are *a symptom*, and not a disease. As everyone knows, they are very much more common in infancy and early childhood, than during the whole succeeding period of life. The reason of this is, that at this time the brain is extremely sensitive; it is undergoing great changes; it is being rapidly developed, and the circulation of the blood in it is unusually active. Convulsions in the infant are often equivalent to delirium in the adult.

Causes.—Convulsions may arise from a multiplicity of causes, of which the following are the most common. (1) From *disease of the brain*, as in the two diseases treated of in Chapters XI. and XII. (2) From a *deficient supply of blood* to the brain, as in debilitated, half-starved, or rickety children. (3) From the *circulation of impure or poisoned blood* in the brain, as in small-pox, scarlatina, or typhoid fever. (4) From irritation in a distant part of the body being reflected on to the brain, as in the case of *the pressure of an upcoming tooth* against the socket and gum: as also in the case of *the presence of indigestible food* in the stomach or bowels, or of *worms* in the bowels. (5) Occasionally from *fright*. (6) Dr. West says that some of the most marked attacks of violent convulsions he has seen, have occurred in children shortly after *the sudden drying up of an eruption* of the scalp.

The children of those who marry too early or too late are

said to be more liable to be attacked by convulsions than others; so, certainly, are those also who are born from parents either of whom has suffered from epilepsy.

Varieties.—There are two; but they vary more in their nature and origin than in their symptoms. (I.) Sudden and violent convulsions, preluded by no great disturbance of health, and apt frequently to recur so long as the cause is unremoved. These are not usually connected with disease of the brain. (II.) Convulsions coming on gradually (so to speak), and after various distinct warnings for some time, not so violent in character, nor likely to recur so frequently, but very often proceeding from disease within the head.

Symptoms.—The symptoms that are frequent *precursors* of a fit have already been stated (see p. 143). When the fit begins, there is a terror-stricken look on the little one's countenance, the head and face become first red, and then of a dusky livid hue; the muscles of the face twitch, and the features are drawn on one side and painfully distorted; the eyes roll, and are wide open and starting, the breathing is quick, difficult, and irregular; and there is often frothing at the mouth. The body becomes stiffened, and the limbs are either rigid or work spasmodically: the hands are generally clenched, and the thumbs, and sometimes the great toes also, are turned inwards. Sometimes during the fit, the child passes his water or a motion involuntarily. If the pupil, or central black disc of "the sight of the eye," is examined, it will at first be found to be much contracted, but afterwards dilated, when the eye for the time is no longer sensible of light, or of external objects. There is one symptom which, when it occurs, is fraught with danger;—I mean the forcible catching of the breath, and loud crowing noise (like croup) often heard during a fit. The child's neck is stretched and his head

bent backwards, instinctively striving to render the breathing easier; the face gets more purple, and the veins more full, and the poor little creature seems to be on the very verge of suffocation; and so he is. This is due to spasmodic closure of the narrow chink at the upper end of the windpipe (called the *glottis*), through which air enters the lungs: and it is a perilous condition. After the convulsion has lasted for a period of from a few seconds to many minutes, it passes off, sometimes permanently, and sometimes only to occur again after a short cessation. When the fit is over, the child quickly regains the appearance of comparative health, and on becoming sensible often seems alarmed, and cries. He then usually falls into a sound sleep, during which he perspires profusely, which is favourable; or, more rarely, he lapses gradually into a state of profound insensibility, from which there is seldom any awaking. Generally speaking, the more violent the convulsions, the shorter will be the attack, and *vice versâ*.

Distinctions.—There is only one disease which at all resembles convulsions; it is epilepsy; and here the resemblance is so close that it is difficult, if not impossible (and practically unnecessary) at the moment, to distinguish one from the other. In epilepsy, however, the fits are shorter, often more violent, and recur with some sort of regularity at more distant intervals than in convulsions. They also continue to appear throughout the whole period of infancy, and on into childhood and mature life.

Prospects of a Case.—There is very seldom cause for *immediate* alarm: it is rare, indeed, for a child to die *in* the fit. If he does, it is from the condition spoken of above, as spasmodic closure of the "glottis." Those cases are most likely to do well, which come on suddenly and without previous warning of ill-health, even though they may be violent. These are usually due to some temporary

irritation, which admits of easy removal. The fits that come on gradually, after a longer or shorter period of disordered health, are of worse omen, betokening as they do, disease of the brain, a cause which is only too often persistent. The prospects are not good if the convulsions appear to have an hereditary origin, or if the child belongs to a family, many of whom have died in infancy from this cause. Inferences can also be drawn from what is stated above of the manner of the termination of a fit (see Symptoms). If the attacks are very long in duration or very frequent in recurrence, the chances of recovery are, of course, bad; and *vice versâ*.

Management.—I. *In the Fit.* Instantly send for your doctor; but circumstances might sometimes be such that if nothing were done before his arrival, nothing could be done after it, as the child might be either dead or dying. If you can ensure his being with you in a very few minutes, await his coming; if his arrival is uncertain, or if he is sure to be delayed, act on the following instructions:—

Order a hot bath (temperature 110° Fahrenheit) to be quickly got ready, and if possible let some rough ice be procured. See that the room is well ventilated and not close, and do not put the child just in front of a blazing fire. Get it speedily undressed, but without fuss. Observe if it draws its legs up to its belly: pass one hand gently over the top of the head, while you feel the pulse with the other. If it does draw up its legs, if the hand feels the head hot, the vessels of the brain pulsating, and the fontanelle * protruding; and if the finger on the pulse finds it full and bounding, there is congestion. At once put the feet and legs of the child in a hot mustard-and-water bath,

* The fontanelle, as explained on p. 330, is the unclosed space in the front of the top of the skull.

and cover the top and crown of his head with pounded ice, wrapped up in muslin or thin linen; or if this is not obtainable, with spirit and water lotion. If the symptoms have not altogether given way when he is taken out of the bath, it may be advisable to put a *mild* mustard poultice on the calf of each leg for ten minutes or so.

If, on the other hand, the head is cool, the fontanelle not prominent, but perhaps even depressed, and the pulse not greatly increased in force, let the child be put bodily into a hot bath,—immersed right up to his neck,—while at the same time friction to the skin is employed over the body and limbs, and smelling salts (not too powerful) are applied to the nose. Whilst these proceedings are actively going on, there may be a moment or two for reflection on the cause of the attack. Has the child had a fit before? If so, what was the probable cause of it? It is very likely to be the same now. *Is it teething?* Examine the gums with the finger, and if an opportunity offers, with the eyes also; if they are anywhere swollen, distended, and angry from the presence of an upcoming tooth (not otherwise), let the affected part be freely lanced *right down to the tooth.* A sharp penknife will do, if no gum lancet is at hand. *What has the child lately had to eat? or has it had too much of anything?* If the answer to these questions leads to any suspicion that it is a mass of indigestible food that has caused the fit, at once proceed to remove it by a purgative.

None is better for this purpose than a grain* of calomel mixed with a little powdered loaf sugar, and dropped on to the back of the tongue. Two or three hours after the powder, if the convulsions have passed off, a draught similar to prescr: 12, or a dose of castor oil, may be useful effectually to clear away all irritating matters.

If the indigestible food has been very recently swallowed and is probably now in the stomach, an emetic given when

* For a child five or six months old, not under.

the fit remits is to be preferred to a purgative. The finger passed far down the throat, or some mustard and water drank, will usually answer. If not, from a quarter of a teaspoonful to a whole teaspoonful of ipecacuanha wine (according to age) will certainly act (see p. 169).

Has the child been sick? If so, what he has brought up may be of aid in forming an opinion. Have his bowels acted lately? If so, look and see if the motion is healthy. *Are there any worms* in it? or have any been noticed in the evacuation? or has he had any symptoms of their presence? If so, he must presently be treated by the doctor with a view to their expulsion.* Is the belly distended, giving a hollow sound when flipped with the finger? If so, very likely mere wind or flatulence is the cause of the fit, and will be dispelled by friction over the stomach, and by the warm bath. It is well to remember that the fit *may* be but one symptom of the coming on of some eruptive fever. If it is, it will shortly pass off without any treatment, as well or better than with it. Convulsions that have for their cause disease of the brain, and that are preceded by head symptoms, can receive no treatment except at the hands of a medical man. In certain desperate cases, where all other means to cut short the fit have failed, the inhalation of chloroform has been successfully employed even with very young infants. I need scarcely say that this is a remedy for none but skilled hands.

II. *After the Fit.*—When the child is taken out of the bath, a warm blanket should be made ready to receive him, in which he should be wrapped. He need not be dressed for some little time. If he is doing well, he will probably soon drop off into a sound and natural sleep, which should not be disturbed, but all noises and bright light must be ex-

* Those who cannot get a doctor will find instructions in the chapter on worms.

cluded. When he wakes, he seems refreshed and shows no traces of anything having been the matter. But in nine cases out of ten, something *is* still the matter: the cause that produced the fit is still in operation, and there is no safety from a recurrence of the convulsion until it is removed. This the medical man in attendance will proceed to do.

If the attendance of a medical man is an impossibility, I can only give the following advice:—Ascertain the cause if you can; and then, whether it be teething, indigestion, flatulence, worms, approaching fever, a rickety state of system, or what not, proceed according to the instructions given on other pages under the heading in question, to correct the vitiated condition.

For some time afterwards the child should be carefully kept from any excitement or irritation, and from heated rooms: the food also should be particularly simple.

Mortality.—There is no disease that kills so many little children in this country as convulsions. In England alone, in the year 1870, there were 25,886 deaths from it under five years of age, of which 20,987 were during the first year.

Prevention.—There is no doubt whatever in my mind, or in that of the largest portion of the profession, that the most prolific source of convulsions in this country is *improper feeding*. This can, and ought to be prevented. Dr. Stark (Registrar-General for Scotland), in answer to an inquiry made by Dr. William Farr, says:—

"When practising as a physician in Edinburgh, I made many investigations into the causes of convulsions in infants, and in almost every case found that they were caused by spoonmeat having been given, and that the tendency to the convulsions was removed by confining the infant to its mother's milk."

Just six times as many children, in a given number of population, die of convulsions in England as in Scotland, where mothers suckle their infants more exclusively and for longer.

Sir William Jenner thus describes the manner in which the children of the London lower classes are reared, and it is more or less true of a much wider section of the community:—

"For the first two or three days after birth, their tender stomachs are deranged by brown sugar and butter, castor oil and dill-water, gruel and starch-water; as soon as the mother's milk flows, they are, when awake, kept constantly at the breast. And well for them if they are not again and again castor-oiled and dill-watered, and even treated with mercurials—for the poor have learned the omnipotent virtues of grey powder. After the first month, bread and water, sweetened with brown sugar, is given several times a day, and during the night the child is, when not too sound asleep, constantly at the breast. As soon as the little ill-used creature can sit erect on its mother's arm, it has at parents' meal-times 'a little of what we have'—meat, potatoes, red herring, fried liver, bacon, pork, and even cheese and beer daily, and cakes, raw fruits, and trash of the most unwholesome quality, as special treats and as provocatives to eat, when its stomach rejects its ordinary diet."*

Is a baby an ostrich that it should be dealt with in this way, and not suffer seriously? Hearing of such things, and knowing that to a greater or less extent they prevail in almost every class of society, we no longer wonder why nearly 26,000 children die in England year by year from convulsions, but rather how *any* children so treated can continue *to live*.

Section II.—Inward Fits.

This mysterious name is given by nurses to a condition frequently occurring in young babies. It has no relation to "fits" at all, and has probably only been called so from the inability of the nurse's mind to grasp any other theory of its production. The baby lies as if asleep, but moans and rolls his eyes about. Perhaps there is some little twitching

* *Medical Times and Gazette*, May 12, 1860.

of the muscles of the face, and a slight difficulty of breathing, and occasionally a dark ring may be observed around the mouth. The child is then said to be "inwardly convulsed;" but he is not, nor is such a thing possible. These symptoms are produced by indigestion and "wind" only, and usually pass off without any other remedy than the application of warmth and friction to the stomach. If, however, they are not so tractable, one or two drops of sal volatile with about two grains of carbonate of soda, or one drop of chloric ether in a little weak peppermint-water, will suffice for their cure.

CHAPTER XIV.

SECTION I.—EPILEPSY.

Popular Names.—"Falling Sickness," and "Fits."

Causes.—There is no doubt that *hereditary* predisposition is one frequent cause of epilepsy. The convulsions of infancy, especially if frequent or severe, may often give rise to epileptic attacks in childhood and maturer life. In 32 cases observed by Dr. West, the following causes were assigned by the parents:—Fright in 3 cases; injury to head, 2; a fall, 1; weaning, 1; errors in diet, 1; disorder of stomach, 2; scarlatina (during recovery), 2; anger, 1; first teething, 18; cutting second teeth, 1.

Influence of Age.—The large majority of cases of epilepsy have their origin during infancy or childhood. The attacks may begin at any age, but the most likely times appear to be (1), during the first two years of life, or at the period of the first teething; (2), between the ages of five and ten, or at the period of the cutting of the second teeth; (3), and between the ages of 13 and 16, or at the period of those changes in the system that constitute *puberty*.

Symptoms.—When the disease occurs in adults, there are nearly always *warnings* of an approaching fit; very probably children have these warnings also, but they are too young to explain or understand them: and the seemingly causeless terror with which they are often stricken just before an attack, is the only forecast of what is coming. The first attack that a child has, can seldom be termed *a f*

mild a form of epilepsy is it. The French call it "*le petit mal*," in contradistinction to "*le grand mal*," or genuine fit. For a few moments the child seems to be in a semi-conscious state, his eyes are wild and fixed, there is a sort of tremor rather than convulsion of the features and limbs, and the countenance is altered in hue, though it can scarcely be called livid. But it quickly passes off, and the child, if he can speak, says he has been giddy and feels sick, and is presently well again. The intensity of the attacks vary from this degree up to the most violent fit, of which the symptoms are somewhat as follows:—The child gives a piercing, discordant scream and falls to the ground senseless and convulsed. The limbs work spasmodically, the features are horribly contorted; he gnashes his teeth and foams at the mouth, and the tongue is protruded and often gets badly bitten. The eyes are half open and fixed, sometimes squinting, the face soon becomes flushed, then purplish and swollen; gasping and choking sounds are heard, and at last, when the child seems as if he had not many minutes to live, the symptoms begin gradually to subside. The fit leaves him in a profound sleep, or rather a state of insensibility, from which he presently emerges feeling perhaps confused, but pretty well, and having no knowledge that anything particular has happened. The duration of the fit is variable; that of the "petit mal" is transient, while that of the more violent attack may be from four to eight minutes, and is occasionally much more. The convulsions may occur only on one side of the body; and one side is usually more affected than the other.

The attacks, whether small or great, generally occur at night, or between sleeping and waking, at the commencement of a case, but as time and fits go on, they begin to happen in the day-time also.

One great danger of epilepsy arises from the suddenness of its onset, and the accidents that may happen from falls and ...cted injuries. If no one is at hand, a child might

fall into the fire, or the water, or from a height, and be irretrievably destroyed before succour arrived.

Prospects of the Case.—It is very rarely indeed that death occurs during a fit, and it is usually only when epilepsy is the result of some *structural* disease of the brain, that it proves fatal at all. But in cases that continue for any length of time, it is worse than fatal to life, it is fatal to the intellect; for what is life when reason has departed? The earlier the age at which the attacks begin, and the more frequently they recur, the greater is the chance that the mind will become affected. It is idiocy that is produced, as a rule,—not madness. If there is no distinct hereditary tendency, if there is no destructive disease of the brain, and if the complaint is taken in hand early, it certainly admits of cure. It is a good sign when fits have been often occurring during the day-time, if we see them begin again to be restricted to the night: the disease is probably yielding. Many parents build great hopes of their child losing the disease at the period of puberty, that is between 14 and 16 years of age. I am bound to say that I believe these hopes to be unfounded.

Management.—I. *During the Fit.* This is very simple. Throw open door and windows and let in plenty of fresh air. Raise the head and loosen any parts of the dress that may be tight, especially round the neck. If you can get a piece of soft wood or india rubber, or any suitable gag retained between the teeth, so much the better: it will prevent the cruel bites that the tongue often receives in the fit. Place the child in such a position that his struggles do not put him in danger, and restrain any movements likely to injure him, such as bumping his head against the floor, or violently striking his hands or feet against hard furniture; but do not suppose that you do the *least good* by holding him down or endeavouring to prevent the convulsive move-

ments of the limbs. Within safe limits these must have their way. If the head and face become very purple and turgid, pouring cold water over them in a good stream often does good. *An epileptic child should never be left alone or out of safe keeping*: a fit may come on at any minute, and if unattended, a fatal accident might occur.

II. *During the Interval.*—The parents of a child who suffers from epilepsy should study and put in force all the measures for the preservation and strengthening of the health that are detailed in Part I. of this book. Whatever improves the general tone of the system weakens the disease. With regard to exercise one caution is necessary. Epileptics do not bear *violent* exercise at all well; I have very often known it to be sufficient to bring on a fit: but there is every reason to believe that gentle and moderate exercise does great good. The child's "schooling" must not be too actively pushed on, but it is found to be a very good thing to keep him always employed at some pursuit which, while it gently engages the mind, gives employment to the hands and limbs as well. I would indicate gardening, the tending of pet animals, carpentering, model making, and other like occupations. The *diet* must be simple and nutritious, and unless the child is manifestly feeble, should contain but *very little meat*; milk and vegetables are good. It is a common thing for epileptic children to have a thick and indistinct way of speaking, and a shambling gait and ungraceful manner. Dr. West says the former can be cured by teaching the child to sing simple chants correctly, and the latter, by a series of easy drilling lessons carried on to the sound of music.

Treatment.—(See note on p. 257.) Drugs are not of *very* great use. If the health is feeble, as it generally is, and the child ill nourished, cod-liver oil, iron and quinine do good, administered for short periods at a time. (Prescrs. 23, 24, and 29.) Prescr. 30 given for some weeks together, sometimes seems to be useful in moderating the disease.

Section II.—Infantile Paralysis.

Paralysis, or loss of the power of motion, of one or more of the limbs, is justly viewed with serious alarm when it attacks an adult, but in infancy and childhood it is not nearly so dangerous a disease.

Symptoms.—Sometimes the symptoms are preceded by convulsions, or some distinct indication of brain disease; but more often, either gradually or suddenly, without the child having complained of much pain, and frequently without any marked appearance of ill-health, it is discovered that it cannot move certain of its limbs; it may be only one leg that has lost power (and this is most common), or it may be the leg and arm of one side, or both legs; but it is not often that one arm is affected alone. At the same time, while the capability of moving is decreasing, the capability of *feeling* is increasing, and the paralysed limb becomes actually sensitive: the more sensitive it is, the more completely is power likely hereafter to be lost. This heightened sensibility does not usually last more than a week or so. The paralysis may recover spontaneously, or be cured, in a few weeks, or it may linger on for years, or it may last as long as life itself. When it does last a long time, the affected limbs feel much colder than the sound limbs, and their growth is very much retarded; thus Dr. West relates the case of a girl of eighteen whom he saw, the left side of whose face and body had been paralysed from infancy. The left arm and leg were shorter and smaller than the right, and the left side of the face and body was smaller also.

Causes.—It is important to ascertain the cause, since the management of the case, and the hopes of recovery are based upon a knowledge of it.

(1.) Some irritation of the brain and spinal cord,* which

* The spinal cord is that *continuation* of the brain, as it were, that

is reflected back, as it were, upon the nerves that cause certain limbs to move, and destroys their power. It may be the irritation of *teething*, of *derangement of the stomach and bowels*, of long-continued *constipation*, of *worms*, or of *cold* (*e.g.*, a child sitting with bare legs on a doorstep).

(2.) From blood-poisoning; as when it comes on during or shortly after, scarlatina, diphtheria, measles, or typhoid fever.

(3.) From some disease of the brain or spinal cord.

(4.) The child may be absolutely *born* paralysed: and there is no doubt that in these cases, paralysis is often not noticed until the child arriving at and passing the age when it ought to walk, is found to make no attempt to do so.

(5.) There are certain other cases for which it is very difficult to assign a cause. They may be connected merely with symptoms of general debility, or it may so happen that a child some night, while in bed, is seized by a short, feverish attack, and on waking next morning, one leg perhaps is found to be motionless.

Prospects of the Case.—These depend very much upon the cause. Cases that have their origin in the third and fourth classes of causes are too often of a very hopeless character; those arising from the first, second, and fifth, frequently recover spontaneously, and still more frequently admit of cure. The longer the disease has lasted over six months, the longer is it likely to last. Infantile paralysis is very seldom indeed directly fatal.

Management.—Directly the symptoms are noticed, obtain the attendance of your medical man; a week's treatment early in the complaint is worth a year's later on. The management of the case must obviously have some

traverses the bones that form the spinal column or spine. It is sometimes called the "spinal marrow." The spinal cord is the organ that, amongst other important functions, supplies the nervous force that originates *motion*.

reference to the nature of the cause; thus, if the irritation of teething, of constipation, or of worms, be suspected of producing the paralysis, the proper means must first of all be taken (as elsewhere directed) to remove these evils. Whatever else may be done, it is essential that untiring efforts be made from the outset to keep the limb in use. If any power remains at all, the child must be encouraged, coaxed, and bribed into using it as much as possible. These attempts will be distressing to the little one, just as an attempt to move a leg that has "gone to sleep" is to ourselves, but it will be false kindness to allow them to be discontinued. If power is so entirely lost that the limb *cannot* be moved by the will of the child, it must be regularly worked every day by the hands of the mother or nurse for a definite time, and in a manner directed by the doctor. Salt water bathing, succeeded by brisk dry-rubbing, must also be employed, and by these means much will be done to prevent the wasting of the muscles and permanent weakness of the limb that would otherwise ensue. If it is one or both legs that are affected, the baby-jumper and go-cart are good contrivances for giving an infant confidence in using his weakened limbs. If it is an arm that is paralysed, tie up the sound one for a given period of each day, so that the weak one only can be used, and tempt the child into some gentle play that will bring it into action.

A warm douche * to the affected limb and to the spine of the back may be useful at the same time; its use must be continued daily, perhaps for some weeks. If the douche does no good, sometimes an ordinary stimulating liniment, well rubbed into the same parts daily, answers better. Galvanism is a remedy from which probably more good may be expected than from aught else, but it must be left altogether

* A douche is a stream of water divided into innumerable fine jets, and directed with some force against any part of the body.

in the hands of the medical man. Over and above all this, it must be remembered that whatever tends to improve the health and impart vigour to the frame will materially tend to remove the disease. Thus, a change to sea air, or to some bracing part of the country, will do good; so will a close attention to the instructions previously given on Diet, Clothing, Ventilation, and Light.

Any function that may be out of order must be set right. If the bowels do not act freely, gentle aperients, such as a dose of castor oil, or as Prescr. 12 or 28, will be useful from time to time. Mild tonics, especially quinine and iron, given somewhat as in Prescr. 23 and 29, are nearly always beneficial.

But whatever measures are employed for the cure of this disease, they must be *perseveringly continued*—often for a long time—before any good results begin to show themselves as a recompense. It is worse than useless, and most ungrateful to the medical man, to feel or express impatience at the slow progress the little patient makes.

CHAPTER XV.

ST. VITUS'S DANCE.*

ST. VITUS'S DANCE, which I will in future call Chorea, is a disease which occurs occasionally in infancy, but is commonest in childhood between the ages of six and fifteen. It is nearly three times as common among girls as among boys.

Medical Name.—The same name as above, in Latin; or simply Chorea.

Causes.—*Predisposing Causes.* (1) Special excitability of the nervous system: hence its common occurrence among girls. (2) A feeble state of the health. (3) The fact of a child having a rheumatic tendency, or having suffered from rheumatic fever, seems strongly to predispose him to have an attack of chorea also. Out of 109 cases, admitted to the Hôpital des Enfants, Paris, that were, or had been, affected by rheumatism, 61 had chorea.† Out of 33 cases of chorea admitted to the Children's Hospital, London, 11 had a history of rheumatism also. (Dr. C. West).

Exciting Causes.—A violent shock to the nerves, such as terror,‡ a blow, or some sudden and strong mental emotion. Some irritation of the nervous system, such as worms, or extreme constipation. Imitation of other children who are

* So called from the name of that saint, who was considered most successful in "charming" away the evil spirit that was thought to be in possession.

† "Mémoires de l'Académie de Médecine." Volume XV.

‡ "A woman in the fourth month of her pregnancy had a frightfully disgusting object thrown at her bosom. She continued for two months in a state of extreme nervous illness from this circumstance, but recovered, and went her full time, remarking, however, that the child

afflicted with the disease will often produce a strong habit that can hardly be distinguished from the genuine disorder.

Symptoms.—They vary much in severity. In a mild case, the child has an occasional twitching in one arm, or she frequently repeats some odd contortion of the face or jerk of the head, or of some part of the body. But in a more severe case, both sides of the body are affected, the child cannot grasp anything with certainty, or hold it steadily for any time in her hands; if she takes her eyes off it, she drops it. Her walk is so jerky and unsteady that she continually stumbles and falls, or she may even be rendered unable to walk at all. The countenance is distorted by sudden and seemingly whimsical grimaces; her speech is stammering and so hurried as to be almost unintelligible; swallowing is only performed with the same hurry and difficulty, and by gulps. Everything, in fact, is attempted with hurry and uncertainty, and in such spasmodic jerks that the attempt often fails. Sometimes the whole body is in writhing agitation, and nothing puts a stop to the movements but sleep. A really bad case has just such a restless, tormented aspect, driven by a will other than its own, as we might imagine was presented by those hapless beings, spoken of in the New Testament history, as possessed by devils.

In almost all cases a temporary dulness of mind is produced; in bad cases this is very noticeable and of long standing, while in the worst cases it goes on to sheer idiocy.

Prospects of the Case.—Though often so painful an affliction to witness, there is very seldom ground for alarm. It is very rarely indeed that chorea is fatal; so that the

was extraordinarily lively in the womb, and that she was often overcome with the sensations it produced. At birth the child (a girl) displayed the writhing motions of chorea, and continued to suffer throughout life. When she was about thirty years of age, she had the appearance of an elderly child, with a head remarkably small, and a mind hardly removed from complete idiocy."—(Dr. Aitken, quoted from Dr. Mayo.)

question is not so much "*Will* this child recover?" as "*When* will this child recover?" The disease is essentially slow; slow in coming, slow in going. The more ordinary periods of the disorder vary between three weeks and three months; the average time is about seventy days. It is very apt to return, even after it has departed; but usually each fresh occurrence is less severe than the preceding one.

Management.—Chorea is usually a disease of debility, and attended by an impoverished state of the blood; and this is to be remembered in the care of a case of it. Any irritation that may be producing the symptoms, must, if possible, be got rid of. A change to the country, or sea-air and sea-bathing, will do good. The diet must be very easy of digestion, but nutritious; and cases will often occur where the doctor in attendance will order *wine*, especially if it can be taken without increasing the excitement.

The shower-bath, if managed well and with tact, is very useful. Do not frighten the child; begin by using a very small quantity of water, and use it tepid, and try and make some little fun or diversion meanwhile. Each day more water and colder may be used, until at last an ordinary bath is daily borne, if not with equanimity, at least with resignation, and without terror. Its use must be persevered in for some time, subject to the guidance of the rule given on Bathing on page 94.

Gymnastic exercises have been proved to be of signal service in this disease, especially after convalescence has begun. They ought to begin with some very simple movements, which should be performed to the rhythm of some tune or chant, in which the time is well marked, the child also joining in. Bending and straightening the arms, or the knees, and marking time with the feet, is all that should at first be attempted, and should never be continued so long as to cause fatigue. By degrees, the patient will become

capable of practising walking, running, jumping, and so forth. But there is a plan of procedure previous to the use of gymnastics, which has been attended by great success. It is thus described.*

"The child being on its back in bed, the teacher of gymnastics, with the help of three or four of his most intelligent pupils, begins by holding him perfectly motionless in that position for from ten to fifteen minutes. He then begins a series of kneading or shampooing movements with the open hand upon the limbs, and over the chest, and afterwards along the back of the trunk, and chiefly the back of the neck, and the muscles on either side of the spine, and these movements are followed by brisk friction of the parts. About an hour is occupied by these proceedings, and they are repeated every day for three or four successive days; and the child is said to experience great comfort, and to sleep much better after them. Without completely discontinuing this shampooing, the child is next made to execute a series of regular and perfectly rhythmical movements for a considerable time together. Thus, while the child is still lying on his back, with his arms extended by his sides, he is laid hold of by the wrists, the forearm is bent on the arm, the arm raised, the forearm extended, and then by a succession of the same three movements the arms are once more replaced by the side of the trunk; and these movements are repeated in the same order again and again. In the same way, the leg is bent on the thigh, and the thigh on the body; and then, these two movements being reversed, the legs are stretched out straight again, and then submitted once more to the same movements with the same regularity. At the end of ten or twelve days, the children are usually sufficiently recovered to go down into the gymnasium, where, under the lessons of the teachers, their improvement becomes perfected."

Treatment.—Tonics and aperients will probably be needed. No tonic will answer better than iron, as in Prescr. 31. As a purgative—for the bowels are always constipated,—a little jalap (about ten grains for a child of 12 years old) with some powdered ginger, will do good from time to time at first; (or as in Prescr. 32); afterwards, perhaps, half a teaspoonful of wine of aloes, or a dose of castor oil occasionally, may be preferable.

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* By Dr. West—quoting from M. Blache. (Memoirs of the Academy of Medicine of Paris, Volume XIX.)

CHAPTER XVI.

NIGHT TERRORS.

THIS is a complaint involving no danger, but causing great distress to the child, and alarm and anxiety to the mother.

Symptoms.—A child goes to bed apparently quite well. After a variable period of sound sleep, he wakes suddenly with loud and terrified cries. He is found sitting up in bed in an agony of fright, and he does not immediately recognise his nurse or parents, but keeps wildly reiterating "Take it away! oh, take it away!" or words to that effect. Consciousness soon returns, and then he clings to his mother or nurse, begging to be taken up. If they do take him up and walk about the room with him, soothing his agitation with caresses, he will usually become calm and drop off quietly to sleep again in about a quarter of an hour. Sometimes he sobs himself gradually to sleep on his mother's breast; sometimes the event passes off with the discharge of a large quantity of almost colourless urine. The rest of the night is generally undisturbed. In some cases these attacks will occur only occasionally; in others almost every night for weeks at a time; whilst in yet others even two or three may happen in the same night.

Causes.—A weak, excitable brain and nervous system predispose to the occurrence of Night Terrors; and the irritation of teething and of a disordered stomach or bowels are the commonest exciting causes. The liability to be thus

tormented certainly runs in families, as it might be expected it would do.

Management.—First,—a child thus afflicted requires to be treated with the utmost gentleness and affection. The fact of his having raised the house is not to be imputed to him as a fault, or to be spoken of as "naughty." He is not to be put to bed alone, or in the dark; the sight of a candle burning and a familiar face close beside him, when he awakes, will do much to dispel his terrors. Second,—The *cause* must, if possible, be removed. If the gums are swollen and pressed upon by an advancing tooth, ask the doctor if he thinks it proper for them to be lanced. The child had better also be put in a warm bath every night before going to bed; and if no medical man is at hand to advise, a dose of grey powder (two or three grains for a child three or four years old) may be given every night for two or three nights, followed by a little castor oil or sweet essence of senna each morning. By these means, together with careful regulation of the diet, any disordered condition of the stomach or bowels will be removed. A short course of a tonic, like Parrish's Chemical Food, also does good.

CHAPTER XVII.

ON INFLAMMATION OCCURRING IN OR ABOUT THE EAR.

INFLAMMATION is very apt to attack the various structures of the ear, in children, in two or three ways; and as the gravity or triviality of the symptoms depends altogether on the degree of inflammation and on the exact part affected, these different conditions should not be all lumped together and regarded as the same and nursed in the same way, but should be discriminated according to the following advice.

Anatomical Sketch of the Ear.—That external fleshy structure which we can see, and which we call the ear is, as everyone knows, only *a part* of the organ of hearing. With the exception of the lobe of the ear, it is not fleshy, however, but made of cartilage, or gristle. If we follow up the channel that commences at the orifice of the ear, when we have proceeded inwards for about an inch and a quarter (in the adult), we find further progress obstructed by a membrane that is stretched tightly across the channel. This answers to the parchment of a drum, and is called the *drum of the ear*. But a drum will not sound unless there is air on both sides of the parchment, neither will the drum of the ear convey any sound to the nerve of hearing, unless the same be the case with it. Therefore into the cavity that we find on the other side of the drum of the ear, there opens a tube, which comes from the back of the throat, admitting air. When this tube is closed by swelling, temporary deafness is the result. This cavity, just named and called the *tympanum*, is formed in the bone, and is only separated by a very thin layer of bone from the brain, which is consequently most apt to be seriously affected by inflammation in this place. It contains three little bones, which assist in the sense of hearing, and is lined by a delicate mucous membrane like that lining the eyelids and lips. All parts of the internal ear are endowed with acute sensibility by the many nerves which are distributed throughout them. But there are yet other

cavities and structures beyond the cavity (of the tympanum) just mentioned. They are too complicated to admit of description here, but they are all in close contiguity with the brain, and one of the chief of them contains the nerve,—spread out in a thin layer in a spiral structure like a snail shell,—which conveys sound to the brain and gives us the sense of hearing.

There may be inflammation merely of the skin around the orifice of the ear, and of the membrane lining the canal for a part, or the whole, of the way up to "the drum,"—which is also covered on both sides by the same membrane: or there may be, which is far worse, inflammation of the membrane lining the cavity of the tympanum, or of other parts of the internal ear.

Section I.—Inflammation of the Ear (External).

Causes.—A strumous or tubercular state of the constitution lays a child very open to attacks of it; but it may occur in a healthy child, from cold, accumulation of wax, during difficult teething, after measles or scarlatina, from injury, or from objects stuffed into the ear by the child.

Symptoms.—There is a feeling of fulness, heat, and itching about the orifice and adjacent parts, which the child shows by scratching and boring its finger into its ear. The heat and itching soon change to a dull aching pain, which before long becomes severe, especially when the ear is touched or pressed upon. It is often attended by great feverishness and restlessness. The pain becomes worse towards night, which the little sufferer too often passes sleepless and moaning;—*screaming* increases the pain. At the same time the child complains of soreness of the head on the affected side, and he carries himself carefully, for fear of any sudden movement jarring the painful part. Moving the jaws or sneezing also increases the pain. On examining the ear, the skin around the orifice and that portion of the interior which can be seen, looks hot, dry,

swollen, and reddened. After a short time the inflamed surface begins to pour out a thick discharge, at first profuse and mattery, and afterwards thin, watery, and more scanty. The appearance of this discharge is the signal of relief of the pain. The disease occurs in all shades of severity, and sometimes is so acute that it passes the barrier of the "drum" and invades the internal ear, implicating even the brain, and giving rise to symptoms described in Section II. of this chapter.

Prospects of the Case.—It is always painful, sometimes acutely so, but never dangerous; except when it progresses into inflammation of the internal ear and affects the brain. It does not usually last more than two or three days.

Nursing.—If the cause is still in operation, as when teething or the presence in the ear of some foreign body or accumulation of wax has produced the disorder, measures must first be taken to assuage the irritation of the former, or to remove either of the two latter. If there is much fever and acute pain, and if the child is not weakly or debilitated, he must be put upon Low Diet (p. 78), and he will be much the better for a brisk purgative. Hot poppy-head fomentations kept constantly applied for a considerable time are most beneficial. A large soft sponge is the best article to use, and the water should be really *hot*. It is also desirable in many cases to well syringe out the affected ear with hot water, continuing the process for ten or fifteen minutes: thus irritating wax may be dislodged, and even if none is there, the warmth is very soothing. The method of doing this is detailed on a future page. Hot linseed poultices, soft and large, each one containing thirty drops of laudanum, is another excellent means of allaying pain and reducing inflammation; so also is holding the ear over the steam of hot water. If, however, the pain and tension

of the parts are not thus relieved, the medical man may see fit to direct the application of one or two leeches, according to the age of the child, to the rim of the orifice, or to the space behind the ear. For directions for applying them and treating the bites, see page 191.

Section II.—Discharge from the Ear.

It often happens, especially in constitutions tainted by struma, that the inflammation just described, instead of departing, becomes *chronic*,* as doctors call it; and this state of things is rendered evident, chiefly, if not solely, by a constant discharge of thinnish matter. It is very often neglected altogether, or treated only at haphazard by some wonderful "drops," or equally vaunted though unavailing specific. This is wrong, and for two reasons; the discharge may, and often does, proceed from some diseased condition of the ear, which a medical man ought to ascertain and rectify; or if it does not *originate* in any particular mischief, if it is allowed to run on, it is tolerably sure to *issue* in some degree of permanent damage to the ear.

Management.—A most important point is to obtain medical advice *early* in the complaint; taken at the outset, it is easily dealt with; when it has run on for some time, it is not. A vulgar superstition still exists among the uneducated that it is a very bad and unwise thing quickly to stop a discharge of this kind. It is a bad thing to stop its free exit from the ear, but an excellent thing to stop the secretion itself. In the majority of cases of this disorder, the health of the child is feeble and his condition poor, therefore change of air, well-regulated exercise and bathing, and a good nourishing diet, with perhaps some blood-

* A *chronic* inflammation or complaint is one that is not at all acute, but of very tedious duration.

improving tonic, are usually necessary. Parrish's Chemical Food or Steel Wine taken two or three times a day (see p. 175) after food, will do well enough, if no medical prescription can be got. Cod-liver oil is also often very useful.

But some remedies must be addressed to the ear itself. The best general directions that can be given in the absence of a medical man, are somewhat thus,—Dissolve some alum or tannic acid in water (six to ten grains of either to an ounce of water), and drop a few drops of this solution into the ear every second day,—or every day if the discharge is very profuse and obstinate in yielding,—and syringe the ear out well with warm water once or twice between each application. Immediately after each syringing, let a drop or two of glycerine fall into the ear, and then place a little soft plug of cotton wool in the orifice; the plug must be frequently changed. If the discharge does not yield to this management, and if the child is old enough, the medical man will perhaps order a little blister (see p. 185 to 187) to be formed behind the ear and kept open for a time by dressing it once daily with a little irritating salve, such perhaps as the savin ointment.

Section III.—Inflammation of the Ear (Internal).

This is always an intensely painful, and often a very serious disease. The inflammation attacks the membrane lining the central cavity of the ear (or tympanum), the parts contained in that cavity, and the membrane forming the drum of the ear. Hearing is often much impaired or altogether lost after an attack, and even worse consequences may ensue, such as disease of the bone, palsy of the muscles of the face, or extension of the inflammation to the brain. I only give a mere outline of the disease to assist recognition.

Symptoms.—At the outset they are much the same as those described in Section I. of this chapter, but of greater severity, and others are present also, such as violent headache, impairment of hearing, and buzzing in the ears. The pain grows more and more intense, and a loud throbbing noise increases the distress. All this is accompanied by a high degree of fever, blood-shot eyes, stabs of pain on moving the head or jaws, sleeplessness, and, often in young children, by convulsions. If a temporary lull in the pain allows the exhausted little sufferer to drop into a sleep, he soon wakes again with a piercing scream. The pain in the ear assumes a bursting or distending character, and after a time, to the intense relief of the symptoms, the drum of the ear gives way and the pent-up collection of matter pours out through the rent. If the matter does not thus get exit (and sometimes it does not), graver symptoms are to be feared; vomiting, delirium, and squinting are some of these, and show that the brain has become implicated.

Advice on Management can only be given according to the circumstances of the case, by a medical man in attendance.

CHAPTER XVIII.

ON INFLAMMATION IN AND ABOUT THE EYE.

INFLAMMATION attacks the eye in many ways and in many distinct situations, and it entirely depends on the kind and degree of inflammation and the structure which is affected by it, whether it is trivial or serious. For instance, inflammation of the mucous membrane lining the eyelids is usually trivial, while inflammation of the retina (the interior nerve-formed membrane of the eye) is always serious.

In the limits of this simple treatise, I propose to do little more than speak of some of the commoner forms of inflammation of the exterior of the eye: and all these occur originally, not in the eye itself at all, but in the mucous membrane that lines the eyelids, and that then folds forwards to cover the front of the eye. Where it covers the white of the eye, its glistening appearance is easily distinguished, and we often see tortuous red blood-vessels running through it. Over the central transparent part of the eye (or cornea), it is extremely smooth, translucent and delicate, and though not discoverable in health, its existence is made obvious when it becomes the seat of inflammation.

These affections of the eyes in infancy and childhood are usually readily curable, if treated early and properly; but if they are neglected, or maltreated with quackery or mischievous ignorance, serious results and even loss of sight may ensue. Hence the necessity of calling in medical aid as soon as any disorder of these important organs is suspected or apparent.

Section I.—Unhealthy Conditions of the Eyelids.

Stye—is the name of a small but painful boil occurring at the edge of the eyelid. When it has once commenced to form, it is undesirable, as it is useless, to attempt to prevent its progress. The boil usually soon "comes to a head," and the contained matter is discharged either by the bursting of the skin, or after a prick by a needle or lancet; occasionally, however, it is gradually absorbed without discharging.

The cause is almost always a debilitated state of the constitution.

Treatment.—Hot fomentations or soft and warm bread poultices. (Grease the eyelids and surrounding parts with sweet oil before applying the poultice, to prevent any part of it from sticking.) If the boil is large, or slow in breaking, permit your medical man to give the matter exit by a touch with a needle or fine lancet.

(See Note, p. 257.) Any hardness that is afterwards left can be removed by the application two or three times (each evening or every other evening) of an ointment made of one part of citrine ointment (ointment of nitrate of mercury), to three parts of fresh lard, well mixed. Apply a very little only, by means of camel's-hair paint-brush. To correct the state of the health an occasional mild laxative is required (as prescr. 12, 28, or 37), together with some gentle tonic **twice a day** (as prescr. 29 or 21) until improvement is evident.

Sore Eyes, or *Chronic Inflammation of the Edges of the Lids*, is a common and troublesome affection of weakly children. *Symptoms.*—The edges of the eyelids are red, rough, and sore-looking, and are usually encrusted (unless frequently cleansed) not only with the matter produced by the inflammation, but also by the disordered secretion of some delicate glands which are contained in the eyelid. Thus, during sleep, the discharge dries and sticks the eyelids

fast together. The disorder may be severe, so as to be attended with pain, soreness, and much irritation of the eye; or it may be mild, and give rise only to itching and discomfort; and of the two, the milder form is the most obstinate. It usually causes loss of the eyelashes, and a good deal of temporary disfigurement, and if it is allowed to run on indefinitely, or ignorantly treated, it may lead to ulceration or inversion of the lids.

Cause.—Usually a feeble constitution, manifesting particular weakness in the digestive organs.

Management.—In the unavoidable absence of medical attendance, whilst the eyes are hot, painful, and swollen, they should be bathed with some soothing lotion (such as prescr. 33), used warm;* and the *edges* (not the outside) of the lids should be smeared every night with fresh lard or sweet oil, to prevent them from sticking together during sleep. If from neglect of this precaution they should stick, do not attempt forcibly to separate them, but bathe them patiently with warm water until they open of their own accord. When the pain, heat, and swelling are subdued, whilst redness and irritability are left, some astringent wash (such as prescr. 34) may be thoroughly well used (cold) every morning and afternoon, while the citrine ointment, diluted with lard (see prescr. 36), is used to smear the edges of the lids at night. It saves subsequent annoyance, and facilitates the application of remedies, if the lashes are cut off short quite early in the course of the disorder. Meanwhile, it is equally important, and perhaps *more* so, that the condition of the health be attended to. Change of air, sea-bathing or ordinary cold baths, and out-of-door exercise, will do good; a plain, nourishing, digestible diet is essential; the using of the eyes by gaslight, or any undue use of the eyes upon

* Warm it by placing the bottle containing the lotion, with the cork withdrawn, in a jug of hot water till it acquires the requisite temperature.

small objects, and living in hot, close rooms must be avoided. It will often be necessary in the outset to obtain a brisk action of the bowels, and it will be proper throughout the complaint to obtain a sufficient daily action of them by diet or simple medicine (see p. 161, Purgatives), if such do not occur naturally. A short course of some tonic (iron or quinine is the best) given two or three times a day, is also very useful in the majority of cases (see p. 172, Tonics).

Section II.—Inflammation of the Eyes of the Newly Born.

Medical Name.—Merely the above rendered into Latin,—Ophthalmia Neonatorum.

Causes.—The most frequent is probably the direct inoculation of the infant's eyes with the secretions of the mother during the act of birth. If, previous to labour, the mother has been suffering from any discharge, the chances of the infant being thus affected are materially increased. Sometimes also it is the result of irritation of the eyes from some other cause,—soap, or neglect of cleanliness.

Site of the Disease.—The mucous membrane lining the lids and covering the white of the eye, wherever it is visible, is at the outset the only structure inflamed; but if the disorder is unchecked, it is very apt to implicate also the central transparent part of the eye (or cornea), and then the sight becomes much endangered.

Symptoms.—It commences during the first few days of life, usually the third. It is at first noticed that the infant cannot open his eyes on account of the swelling of the eyelids. These soon become very puffy and enlarged, and seem bulged out from beneath. Matter begins to ooze from between them, and to dry and crust on their edges, and

if an attempt is made to raise the upper lid, a gush of thick yellow matter escapes. If the lids can be so separated that their inner surface and the eye can be seen, the former is found to be deep red, rough and tumid, and the white of the latter looks bloodshot and full of tortuous red blood-vessels: the whole surface is pouring forth the thick yellow matter before mentioned. Meanwhile, the infant's health is much impaired. It constantly cries with pain; it is often feverish, wakeful, and restless, and only takes the solace of the breast or bottle in a fitful and dissatisfied manner. If this condition of things remains unchecked, the transparent part of the eye, or cornea, begins to lose its brightness and glisten, and to get hazy, and ultimately more or less opaque in places; while its accustomed smoothness is roughened and, as it were, eaten into in some spots. These are certain signs that the inflammation has extended to the cornea, and that the sight is in danger.

Management.—It is obvious that this is a complaint which should be brought under the notice of the medical man as soon as it appears. But whether a surgeon is in attendance or not, there are certain duties that will fall to the share of the mother or nurse. The eyes must not only be kept scrupulously clean and washed free of discharge externally, but the space *within* the lids must also be constantly cleansed. The process is as follows. As the mother has been but recently confined, she is not usually in a position to render much assistance; therefore the nurse must call in the aid of some one else, who is gently but firmly to hold the baby's head in an immovable position, while the nurse proceeds to open its eye. I may here say that, bad though that would be, it is better not to open the child's eyes at all than to do so with pressure on the eye itself or with violence. The points of the nurse's fingers should not be applied to the edges of the lids or near their

edges, but the first finger should rest above, and the thumb below, on the easily felt rim of bone which forms the margin of the orbit, and from these points steady traction should be made by simply separating the finger and thumb. Directly the lids are parted, a gush of matter usually escapes, and then either with a sponge or a small glass syringe, which can be used with the disengaged hand, the nurse must direct a small stream of warm water on to the inner surface of the inflamed lids and on to the eye, until *all* the matter is thoroughly washed away. Another sponge must be so placed as to catch and absorb the water as it runs out of the eye. When this has been done, the eye must be carefully dried with soft pledgets of lint or old rag, and then a drop or two of the lotion prescribed by the surgeon * must be allowed to fall between the lids, and finally their edges must be greased with olive oil or spermaceti ointment, to prevent their sticking together. The whole of this process should be gone through every four hours, or at such intervals as may be specified by the surgeon. As the eyes improve, six, eight, or twelve hours may be allowed to elapse between each cleansing and application. In all cases that are not complicated by inflammation of the cornea, the cure is complete within a week.†

* For the benefit of those who cannot have surgical advice, I may state that a lotion, such as prescr. 35, will answer well. Only one large drop should be used at a time. The practice at the Central London Ophthalmic Hospital is (or was) to wash the eye out, after it has been duly cleansed as above, by means of a syringe with a lotion made of 4 grains of alum to 1 ounce of water, *every half-hour*.

† I am very much in favour of frequent (*i. e.*, every half-hour) washing of the eyes in these cases—it ensures the eyes being kept clean from the discharge, and keeps the nurse's attention fixed on the importance of attending to the disease. A hint may not be here out of place as to the method of dropping solutions into the eye. Do not use a camel's hair brush, nor any pointed instrument, but take a tolerably large stick as, e.g., the end of a penholder : a large drop will hang well from such

An opportunity is afforded when the lids are separated of examining the condition of the cornea. We have previously mentioned what is implied by a hazy or opaline appearance of it; a film of matter over it will often simulate this haziness, but the deception vanishes before the stream of warm water. Let the towels and sponge used for the infant's eyes be used by no one else; the disease may be imparted to the eyes of another by contagion,—that is, contact of a healthy eye with matter from a diseased one.

Section III.—Cold in the Eye.

Medical Name.—Catarrhal Ophthalmia.

Causes.—A draught of cold air falling upon the eye, disorder of the digestive organs, or local irritation.

Symptoms.—There is at first heat, smarting, and dryness of the eye, and the child complains that he has got some dust in it, and keeps constantly rubbing it. He keeps it partially closed and avoids the light. On opening it to examine it, there is a gush of tears, and the mucous membrane covering the white of the eye is seen to be very much reddened, and full of enlarged blood-vessels. After a time the watering of the eye often turns to a scanty discharge of thin matter, which in bad cases becomes thick. This discharge is probably *contagious*.

Management.—Lowering measures, except in cases where the child is plethoric and the inflammation intense, do more harm than good. Let the bowels be well cleared out at the onset and once for all;* let the child be kept away from a hot fire, and in a cool room, where the light

a body, and is very easily disengaged by a slight shake into the eye. —H. S.

* By a dose of jalap (see p. 163) or of sweet solution of senna (prescr. 12) or by prescr. 28 or 37.

is dimmed, and let him have a moderate but not a *full* diet. The eye is to be fomented every hour or so by a soft sponge with hot poppy-head decoction, or with simple hot water.

If the inflammation is anything more than slight, it may be well, in the unavoidable absence of medical attendance, to wash out the eye every few hours with some such lotion as prescr. 33 or 34, or, if it is severe, to drop a large drop of astringent lotion (prescr. 35) into it twice a day.

The edges of the eyelids must be smeared for the first two or three nights with olive oil, and afterwards with diluted citrine ointment. Let the child keep strictly to his own towels, handkerchiefs, and sponge.

Sometimes this condition of the eye becomes *Chronic*:—

It is then necessary (1.) for the eye to be carefully examined to ascertain if any source of continuous local irritation exists (such as inverted eyelashes, foreign matters within the lids, &c.), and if it does, to remove it. (2.) The general health must be looked to, and will often require to be treated with a combination of mild laxatives and tonics, as recommended for Stye on page 370. (3.) Astringents will have to be applied to the eye, and probably the use of the nitrate of silver drops (prescr. 35) will be required, in the manner above directed. A little laudanum, diluted with three times as much water, also makes a useful application to drop in, in the same way. If the case is very obstinate, a little blister behind each ear may become necessary (see page 185).

Section IV.—Strumous Inflammation of the Eye.

This complaint is probably the commonest of all disorders of the eye occurring among children, and is most usual between the period of weaning and the ninth year. This fact affords a good illustration of the protective influence of nursing against the development of strumous disease: inasmuch as a case of strumous ophthalmia is seldom or never seen till some time after an infant has been withdrawn from the breast.

Medical Name.—Strumous or Phlyctenular Ophthalmia.

Causes.—Debility acting on a strumous constitution. The operation of a combination of the causes which have been stated (p. 318) as likely to produce struma.

Symptoms.—The most manifest symptom is *extreme intolerance of light;* the child keeps the affected eye tightly closed, and always turns his face away from the light. If the eye is examined, it is not found greatly inflamed, as might be expected, but certain little opaque white spots, or pimples, are seen on the white of the eye near the margin of the cornea (or transparent circular part), with a little redness in their neighbourhood, and usually an enlarged blood-vessel or two running towards and terminating in each. The pimple bursts and exposes a minute ulcer which soon heals up into an opaque white spot. Sometimes these pimples and spots occur upon the cornea (or "sight") and then the intolerance of light is extreme, and there may be some degree of pain. Moreover, an ulcer, if in this position, and if not soon healed, may possibly *perforate* the cornea, allowing a portion of the contents of the eye to escape, and producing the most serious results. The white specks often remain for a long time, fading but very gradually. Improvement in the child's health and the remedial means shortly to be alluded to, hasten their removal. When the child's eyes are opened (and at other times also), profuse gushes of scalding tears will escape, which, coursing down over the cheeks, often so inflame and irritate the skin that a pustular eruption is produced, which creates a discharge that encrusts and disfigures the face and contiguous parts.

Like many other strumous complaints, this is often an obstinate one, and liable to recur.

Management.—*Both* eyes should be protected by a shade, and whilst the intolerance of light is very great, the child must be kept in a darkened room. Put in force, as far

as may be, all the means detailed on pp. 319 to 324 for preventing or ameliorating strumous disease.

The popular remedy of *piercing the ears* is entirely useless, and the pretext that it is "good for the eyes," is more often than not an excuse for the perpetration of an act of simple vanity.

Treatment.—(See Note on p. 257.) (I.) Attend to the general health, which is almost certain to be feeble, or disordered. Laxatives will be required until the evacuations are rendered healthy. A powder every night, or every other night, similar to prescr. 38, is very useful for this purpose; or prescr. 40 may be used. (II.) When the tongue is clean, and if there is no fever, it will be right to restore the health by means of quinine, steel, and cod liver oil. Advice on the giving of cod liver oil will be found on p. 321. Quinine in very many cases seems to act like a charm, the opaque white spots or hazy places on the cornea dissolving like mist wreaths before the sun. Prescrs. 21 and 23 furnish forms in which it may be taken. (III.) To relieve distressing intolerance of light, over and above the darkened room (which should be continued as short a time as possible) it is useful to cause the eye to be held over the steam of boiling water, or to expose it to the vapour of spirit of camphor; but the best remedy is to smear the extract of belladonna on the eyelids and the skin surrounding the eye; but then people who are cut off by distance from medical aid are usually cut off from extract of belladonna also. (IV.) When the disease has continued some time, and the eye is much congested, painful, and dotted with superficial ulcers, a large drop of the lotion (prescr. 35) allowed to fall into the eye once a day, does good: so also does the application of the diluted citrine ointment (prescr. 36) to the edges of the lids at night. In very obstinate cases, the application of a small blister behind the ear to be kept discharging for a short time (see p. 187), seems to be of good service. (V.) The removal of the disfiguring crusts or scabs on the face, produced by the irritation of the tears, is not difficult. A light bread poultice will cause their separation, and the sore surface thus exposed may be healed without any resulting scar, by applying a lotion made of a quarter of an ounce of oxide of zinc rubbed up with six ounces of water.

CHAPTER XIX.

DISORDERS OF THE NOSE.

SECTION I.—BLEEDING FROM THE NOSE.

THIS is, as everyone knows, a very common occurrence among children, and in the majority of cases, of no great importance.

Causes.—(I.) It may be the result of a blow; it may proceed from undue fulness of blood in the system, or from a rush of blood to the head during excitement, or from over exercise. When produced by any of the above causes, it signifies but little, and is often merely an effort of Nature to relieve herself. (II.) But on the other hand it is a symptom of more import, when it occurs during whooping-cough,—caused partly by the violent efforts in coughing, and partly by deterioration of the blood and weakening of the vessels,—and it is an event of very evil omen, when it occurs towards the end of a wasting fever, such as typhoid, or in a certain form of disease of the heart.

Management.—The majority of cases among children need no treatment; if the child is kept cool and quiet, the bleeding presently stops. When it appears to proceed from undue fullness of blood or plethora, low diet and a brisk purgative, such as Epsom salts, will assist the effort to relieve itself that Nature has already begun to make. The same precautionary measures will do no harm if the bleeding occurs during hot weather or after severe exercise. But

there are some cases in which the bleeding is so severe as to require immediate stanching, and there are others in which, though the bleeding is not great, the child is too weak to bear *any* loss of blood. The familiar nursery remedy of slipping a cold key down the back, will occur at once to the maternal mind; it has the merit of being handy. If it does not answer, a sudden douche of cold water down the spine, while a cold sponge or ice is applied to the forehead at the same time, is a more effectual remedy of a similar kind. If by chance these remedies should fail, surgical aid should be called in. But if it is not to be had, or only after considerable delay, the nostrils must be at once syringed out with a solution of alum (one drachm to four ounces of water), when the bleeding will probably be immediately stopped. If, however, this should not be the case, some cotton wool must be soaked with tincture of perchloride of iron, and the affected nostril or nostrils must be plugged with *as much of this as can possibly be introduced* without injury. Should oozing of blood continue after this has been done, or should it trickle down into the back of the mouth, nothing more can be done except by a surgeon.*

SECTION II.—OFFENSIVE DISCHARGE FROM THE NOSTRILS.

Medical Name.—Ozœna.

Cause.—When this distressing complaint occurs during childhood, the subjects of it are almost always of a strumous

* The following is a very safe, efficacious, and rapid method of stopping bleeding of the nose, though it may sound to the uninitiated the very way to increase it. Place a pile of books, about four or six inches in height, on the floor, place the child on his back across it, so that the small of the back rests on the pile of books, and let the heels and the back of the head touch the floor, so that the child is arched backwards: the most obstinate bleeding will then cease generally in from one to two minutes.—H. S.

constitution, and probably bear other evidences about them of this taint. Struma, then, is the *predisposing* cause, but it may be called into existence by a severe cold in the head, which it follows; by the exhaustion of the system produced by a fever; or it may arise no one knows how or why.

The Nature of the Disease is an unhealthy inflammation and ulceration of the mucous membrane lining the nasal cavities,—in a word, the whole interior of the nose.

Symptoms.—There is but one distinctive one, but that is quite enough,—namely, a discharge of matter from the nose, usually profuse, but always of a most intolerably offensive odour. So much is this the case, that the poor child becomes an outcast from society; others find it impossible to endure his presence in a room. Together with the discharge, there are usually weight and stuffing in the head, headache across the brows, debility and dullness of spirits. If the case is neglected, or suffered to go from bad to worse, the *bones* of the nose are liable to become implicated in the ulcerative process.

Prospects of the Case.—Like most diseases of a strumous nature, this is usually obstinate, and sometimes goes on, with occasional intermissions, to adult life. Its *cure* is nearly always difficult. It is never directly dangerous.

Management.—Bear in mind that the essence of this disease is Struma, and manage your child accordingly, carrying out all the advice given on that subject (pp. 319 to 324).

Treatment.—(See Note on p. 257.) The Syrup of Iodide of Iron is useful in this complaint (see p. 175), and it can be advantageously taken with cod liver oil. For the deodorisation of the discharge and for the relief of the nostrils, nothing is better than to wash them out with a lotion made by mixing half an ounce of Condy's fluid with six ounces of water. The lotion should be used *warm*, and should be applied with some degree of force by means of a large syringe.—The stream washes away in its rush any collections of matter that may have formed,

and deodorises the unhealthy secretion that adheres to the sides of the channels that it traverses. This process should be repeated, always twice, and sometimes three times in each day. In addition to it, benefit is often gained by smearing such portions of the lining membrane of the nostrils as can be reached with a camel's-hair paint-brush, with a mixture of one part of carbolic acid and seven parts of glycerine, three or four times a week.

It is a complaint calculated to tax the patience of the parents, the endurance of the afflicted one, and the resources of the medical man.

CHAPTER XX.

DISORDERS OF THE MOUTH.

SECTION I.—THRUSH.

THIS, though an extremely common—an unnecessarily common—disease of infancy, is not in the least understood by those who have the care of infants, and a great deal of nonsense is talked in connection with it.

Causes.—It is necessary first of all that I should explain that Thrush is not so much a disease in itself, as it is the *symptom* of a disordered condition of the system. The cause of Thrush is impaired digestion and assimilation of food, and a lowered condition of the vital powers generally; and this, too, is the disease of which the eruption in the mouth is only the sign. It is most commonly met with in young infants, the majority of whom are under two months old, and on whom the attempt is being made to bring them up by hand.

Symptoms.—A child who has the Thrush presents the following distinctive symptom: on looking into his mouth, you will find its interior studded with countless, small, white spots, just like specks of curd, lying on the surface; but it is soon evident that they are not curd, as they cannot be moved without difficulty, and when they are, the place where they were, is seen to be deep red and raw, or even bleeding slightly. These specks are most numerous on the inside of the cheeks and lips, especially near the corners of

the mouth and on the tongue; they occur more sparsely on the gums and the roof of the mouth. Originally the spots are not larger than a pin's head, but they continue to grow in size, until, after two or three days, the encrustations drop off, leaving the places they had stuck to a deeper red than natural. Usually successive crops of spots are developed for a time; as one drops off, another sprouts up. At the same time the inner surface of the mouth looks angry, hot, and dry. The soreness of the mouth often renders sucking painful and difficult, and sometimes even the act of swallowing also; thus the unfortunate baby gets but little food, and lies frequently in a state of torpor and seeming unconsciousness, which is the result of semi-starvation and debility. In severe cases the spots are not only very numerous, but they also rapidly enlarge and coalesce, forming large patches of white incrustation, which may line a great portion of the mouth and extend some short distance down the throat as well. But this is by no means all. The child is usually considerably out of health also, and probably the general ailment existed for some little time before his mouth was noticed to be affected. He is, more often than not, emaciated and ill-nourished; he is fretful and restless, or frequently screams, obviously from pain in the stomach and "wind;" the bowels are relaxed, and the evacuations greenish and very sour-smelling. Indeed the evacuations are of so acid and irritating a character, that they cause, and keep up, a red, raw, and inflamed state of the skin all around the anus (or fundament), on the buttocks, and down the inner part of the thighs. This condition of things is a fruitful source of misery to the poor infant. In some very rare instances, a spot or two of the same curd-like appearance as those seen in the mouth, may be detected on the edge of the anus. This irritable and inflamed condition of the skin in these regions, is considered by nurses and mothers as irrefragable evidence that

"the thrush has gone through him." This, however, is quite a mistake. The lining membrane of the gullet, stomach, and bowels, are altogether free from thrush, and the inflammation only appears below, because the evacuations are so acid and irritating that they produce it.

The Nature of the Disease.—The discovery of the exact nature of thrush was made in 1842 by Professor Berg, of Stockholm. By the microscope he demonstrated that the white exudation of this disorder is made up for the most part of the sporules of certain fungi,* which develop and multiply under circumstances apparently favouring their growth. Thus we see that the human race may suffer from vegetable as well as animal parasites.

The reason that this parasitic growth may flourish in the mouth of a young infant and not in that of an older person (except under very special circumstances), appears to lie in the fact that the secretions of the mouth are only *acid* in early infancy,—which is a condition essential to the development of the fungi—and after that period are *alkaline*.

The order of events then in this complaint is as follows—(1.) There is disorder of the digestive organs and impaired nutrition. (2.) Hence follows inflammation of the mucous membrane of the mouth, together with increased acidity of its secretions. (3.) Consequent on this is the development of a species of low vegetation, little masses of fungi; not the *cause*, you will perceive, but the *effect* of the infant's disease.

Is it Infectious?—Infectious? No. Contagious? Yes; for Professor Berg in each one of four trials, found that the transplanting of a speck of the white matter from the mouth of a baby with the thrush to that of a healthy one gave rise to a genuine attack of the disease.

Management.—Remembering the fact just stated, it is

* These cryptogamic plants are the Oidium Albicans and the Leptothrix Buccalis.

essential that a baby with thrush should be restricted to the use of his own spoon, cup, bottle, sponge, and towel, where there are other little children about. First of all, the diet must be carefully regulated (see remarks on infant feeding, pp. 17 to 44), since the origin of the disorder is impaired digestion. Bad cases, where there is great prostration of strength and emaciation, will often require at once to be handed over to a wet nurse to effect their restoration. Great *cleanliness*, both local and general, should be exercised; and the child should have plenty of fresh air and warm clothing. In all cases it is necessary for the remains of milk after each feeding to be wiped gently from the mouth, either with a small and very fine, moist sponge kept for the purpose, or with a piece of soft rag dipped in warm water. In very slight cases this precaution alone is sufficient to bring about recovery. In cases that are not so slight, some further local application becomes needful. As every one knows, borax and honey (Prescr. 8) is the popular remedy, and it is not by any means a bad one. I prefer, however, an application made by dissolving half a drachm of borax and one drachm of glycerine in an ounce of water; this is to be freely brushed over all the affected parts of the mouth with a camel's-hair paint-brush twice a day. Sir William Jenner says that a solution of one drachm of sulph*ite* (not sulph*ate*) of soda in one ounce of water, applied in a similar manner will remove the thrush-spots more readily still.

The state of the bowels will usually be relieved by giving every night and morning for a day or two, some such powder as is mentioned in Prescr. 26. The acidity of the stomach will be benefited by one or two teaspoonsful of Dinneford's Fluid Magnesia, or three grains of bicarbonate of potash, or a little lime water in the milk three times a day.

Mortality.—Thrush is usually a trivial and but com-

paratively seldom a serious malady, yet in the Registrar-General's Annual Return for England (1870), no less than 1201 deaths under five years of age, and of which 1155 are during the first year of life, are classed as from thrush. Probably not one of these was actually from thrush itself,—any more than the death of a child poisoned by laudanum can be said to be from oversleeping—but rather from the diseased, debilitated condition of the system in which thrush arises. This fact, however, teaches us that thrush is an indication of a condition of body, that is by no means to be overlooked or pooh-poohed, since it may at any time become formidable and even fatal.

Section II.—Inflammation of the Mouth.

Medical Name.—Follicular Stomatitis.

Causes.—Common in children under five years of age, especially among those of a weakly constitution. It is usually caused by disorder of the stomach or bowels, or it occurs as a consequence of measles; in the latter case it is simply due to the appearance of the disease on the mucous membrane lining the mouth, as well as in the usual manner on the skin. "Again and again," says Dr. Edward Ellis, "children have been brought to the Victoria Hospital for 'ulcerated mouths,' which, when examined, are found to contain the 'fount and origin of evil' inside them, in the shape of a lump of unripe apple, some trashy sweet, or other stomach-deranging substance, with which the poor are for ever quieting their children."*

Symptoms.—A great deal of restlessness and some degree of fever, together with a relaxed state of the bowels, and an unhealthy condition of the evacuations generally, are very often noticed for two or three days before any symptoms

* Diseases of Children.

appear in the mouth. Attention is usually first called to trouble in this part, by the pain that is evidently caused whenever the child tries to suck or to take food: at the same time the saliva dribbles very freely from his mouth, and most probably there is tenderness and slight swelling of the glands under the jaw. When the mouth is opened, it is found to be redder than natural, and hot, and a great quantity of white specks are to be seen dotting its sides, and the tongue, and the parts towards the throat. These specks soon form ulcers, and the ulcers are covered with a dirty white film. Sometimes the little ulcers remain separate, but often they run into one another, so as to form whitish patches of some extent; but whether they do or not, as one crop heals, another comes on; and so, unless checked, the malady may run on for a long time, until the child is nearly starved in fact, and much exhausted.

When this complaint occurs in connection with measles, it sometimes shows a disposition to run into a state resembling diphtheria, and is, of course, proportionally more serious.

Distinctions.—This disease must not be confounded with thrush. The two are quite different in their nature, though their symptoms are not altogether dissimilar. In the disorder we are speaking of, the white specks and patches in the mouth do not consist of masses of microscopic vegetable growths, as they do in thrush, but of thin films of dead membrane. Thrush is most common in young infants, and during early teething. Inflammation of the mouth most often occurs between the later months of teething and the fourth year. The efflorescence of thrush is *white* and slightly raised above the surface; the specks or patches of inflammation of the mouth are *dirty white* or creamy-coloured and rather depressed. In thrush a red, raw, and irritated condition of the skin on the child's bottom

and around its fundament is very common; in inflammation of the mouth, it is rare.

Management.—Let the diet be carefully regulated as regards its digestibility and the condition of the bowels. Minute inquiry should be made as to whether there are any signs that the food which is being taken does not suit the child, and if there are, it should be at once altered. Everything will have to be taken either fluid or diffluent and pulpy, on account of the soreness of the mouth. If the infant's general conditions of life are not favourable, they must be improved according to the teaching contained in Part I. of this book. The use of an application to the mouth made of borax, glycerine, and water, as stated when speaking of thrush (p. 385), will be of great benefit. The mouth should be kept very clean by sponging it out gently two or three times a day; linseed tea or decoction of marsh mallow will do as well as anything else for a cleansing wash.

(See Note on p. 257.) The condition of the stomach and bowels must be corrected. A dose of "Gregory's Powder" (rhubarb, magnesia, and ginger) may be given each day for two or three days, in order to neutralise acidity and clear away all vitiated secretions (Prescr. 40). The continued administration, three times a day, until the mouth heals, of the mixture mentioned in Prescr. 9, is always of considerable use.

CHAPTER XXI.

ON MUMPS, QUINSY, AND ENLARGED TONSILS.

SECTION I.—MUMPS.

Medical Name.—Parotitis, or Cynanche Parotidœa.

Nature of the Disease.—It is an inflammatory affection of some, or all, of the glands whose office it is to secrete saliva, and of the tissues immediately around them. The largest of these glands is called the parotid gland, and is situated in front of and beneath the ear on each side of the face. This gland is the one that is chiefly affected. The disease is much commoner and likewise more severe in children over seven years of age than in those that are younger.

Causes.—None known but contagion.

Is it Contagious?—Yes. It sometimes occurs in isolated cases, but more commonly as an epidemic. It does not often attack the same person twice.

Period of Incubation.—(See p. 264.) This varies from eight to twenty-two days.

Symptoms.—It usually sets in with more or less fever, alternating with chilliness, thirst, headache—a feverish cold, in fact—which before long is followed by stiffness of the jaw and swelling all down the sides of the face, especially in the neighbourhood of the ear. If the case is one of anything but the lightest, the swelling, which is very hard and painful, extends along beneath the chin on both sides, and meeting, becomes continuous from ear to ear. The

face is ridiculously distorted, and any motion of the jaw, or even of the tongue, as in eating, swallowing or speaking, is very painful. In some cases the initiatory fever is severe, and may even be attended with light-headedness, and the pain for a time is sharp; but the disease, whether slight or otherwise, runs a definite course, and forty-eight hours after the first appearance of the swelling, it has reached its height, and begins from that time gradually to diminish, all other symptoms also being speedily abated. Sometimes it happens that some degree of hard, painless swelling remains long after the disease has left, but this is not at all usual. It is very seldom that the inflammation results in "gathering" or abscess, unless in a very strumous child. There is one singular circumstance to be related of this disease, but which seldom occurs unless the patient is either an adult or in the latest stage of childhood, where the boy and girl are being indefinitely merged in the youth and maiden. We will suppose that such an one is suffering from mumps, in full tide of all its misery. Suddenly the pain and swelling in the face cease; the disease seems to have vanished, as if under the influence of a spell. But before time has been allowed for congratulation on this lucky event, swelling and pain more severe than at first are felt in *the breast*, if the patient is a girl, in *the testicle*, if a boy, and the sufferer has no cause to be gratified with the change in his or her malady. The inflammation has, in fact, migrated from one organ to the other; and it often so happens that ere it leaves the system, it seeks once more its original site.

Management.—The child must be kept at rest, if the symptoms are severe, in bed, but at any rate in one room. A brisk purgative will be very useful in the outset, such as Prescr. 41. Flannels wrung out in hot poppy-head decoction, or in mere hot water, must be kept constantly applied, varied by an occasional hot and large linseed

poultice. If the breasts or testicles should chance to be attacked, they had better be treated in the same way; it is not usually wise or advisable to attempt to lure the inflammation back to the face. It is very seldom necessary, or otherwise than injurious, to apply leeches. If any degree of hard swelling remains for long after the disease has left, it can generally be readily dispersed, by painting it once daily for three or four days, with tincture of iodine.

Section II.—Quinsy or Inflammatory Sore Throat.

This is a rather rare complaint among children under twelve years old, and it is *very* rare in those under five.

Medical Name.—Tonsillitis, or Cynanche Tonsillaris.

Nature of the Disease.—It consists of inflammation of the tonsils—which are a pair of soft, fleshy eminences situated one on each side of the entrance to the throat, near the root of the tongue—and of their surrounding parts.

Cause.—The commonest by far is *cold*. Each attack leaves the child more susceptible, and more liable to renewed visitations of the complaint than before.

Is it Infectious?—No proof exists that it is.

Symptoms.—It sets in as if for a severe cold, with fever, shivering, flushed face, and headache. Soon there is great and distressing soreness of the throat, with a feeling of throbbing and tension, and extreme difficulty of swallowing. The tongue often becomes very furred and creamy, and thirst is much complained of. Indeed, it is characteristic of this malady, that the constitutional disturbance or feeling of illness produced by it, is out of all proportion to its importance. It completely prostrates the child for a time.

If the mouth is opened wide and the tongue depressed,

one or both of the tonsils and the contiguous parts will be seen to be intensely red, swollen, and angry-looking, and probably a good deal of thick and sticky mucus will be clinging about the parched mouth and throat. Meanwhile the pain and difficulty of swallowing (and with them, the feeling of illness) increases; pain, too, shoots up towards the ears, whenever an effort is made to swallow, and the saliva runs from the mouth.

After these symptoms have gone on for a longer or shorter time,—perhaps their average duration is from forty-eight to fifty-six hours—the attack draws to its termination, which may happen in any one of three ways. (1.) It may gradually pass off, the inflammation abating, and leave no trace of its visit. (2.) It may pass off gradually, but leaving behind palpable signs of mischief done, in persistent enlargement and hardening of the tonsils (see p. 395). These are the two commonest modes of termination in children. (3.) The inflammation may go on to "gathering," or formation of abscess in the tonsil. This result is often signalled by the occurrence of fresh shivering and increased tensive and throbbing pain. The quantity of matter formed is seldom large, and when it is let out by the bursting of the abscess into the mouth, or by the lancet of the surgeon, the relief is instantaneous, and the child often says he feels well again. This event, however, is of rare occurrence among children.

Prospects of the Case.—It is never dangerous.

Management.—The child must go to bed: indeed, he will do so voluntarily. The pain given by swallowing, prevents the use of any other diet than one composed of light liquid or semi-liquid food, such as chicken or mutton broth, milk, rice-milk, or corn-flour and milk, tea, &c. Stimulants are not to be given. For the craving thirst, barley-water and lemon-juice (No. 25, Appendix A) iced, is

more agreeable and useful than anything else. At the outset a mustard and linseed poultice (Prescr. 4), or perhaps two of them successively, are to be applied to the throat, and they are to be kept in position by a handkerchief passing beneath the chin and up the sides of the head, and tied on the crown. The poultices should be large enough to reach under the chin from ear to ear, and sufficiently broad. After these two have been applied, it is good practice to go on unintermittingly poulticing with linseed alone, hot, soft and moist, until the symptoms obtain relief. When the difficulty of swallowing and the pain at the back of the throat are severe, considerable ease is often gained by fomenting, as it were, the inflamed parts with the steam of hot water. This may be done either by means of an inhaler,* such as is sold for the purpose, or more simply, and nearly as efficiently, thus;—take an ordinary quart or three-pint jug, narrowed at the neck, and fill it three-fourths full of boiling water, then let the child place its open mouth immediately to the orifice of the jug, taking care that the edge is well guarded with a napkin or towel, and draw in the steam as it arises, for several minutes at a time. I have seen this very simple remedy give great relief in numbers of cases. A wash for the mouth, of raspberry vinegar and water, or of one drachm of chlorate of potash with three drachms of tincture of kino in 8 oz. of water (Ellis) will give comfort, by clearing away the sticky mucus that worries the young patient.

In case the inflammation should go on to abscess, and the doctor should propose to lance it, the mother should make no objection to his doing so; he will not do it till the proper time arrives, and great relief will follow the discharge of the matter. Of course, after the evacution of

* Nash's Bronchitis Kettle is useful for this purpose, which sends a stream of steam into the room and so moistens the whole atmosphere.

the matter, whether by natural or artificial means, the mouth should be well washed out with hot water, to which a few drops of Condy's fluid have been added.

Treatment.—(See Note on p. 257.) At the outset of the attack, one or two copious actions of the bowels do great good. They may be induced by giving a dose of Epsom salts (one drachm for a child twelve years old), with some syrup of ginger and peppermint water, followed after some hours (unless the action has been considerable) by some such draught as Prescr. 32. The bowels having been well relieved, Prescr. 39 is useful; and when the child is convalescent, his strength will be restored by a tonic, as in Prescr. 42; while the throat and tonsils are strengthened and benefited by an astringent gargle (if the child is old enough to use one) as in Prescr. 43.

Section III.—Chronic Enlargement of the Tonsils.

Nature of the Disease.—It is an enlarged and hardened condition of the tonsils, which may vary from merely a slight swelling of them to such an increase in size, that they stand out and meet each other in the back of the mouth, and form a troublesome and often painful impediment to swallowing, speaking, and breathing.

Causes.—It was stated in the preceding section that quinsy sometimes leaves the tonsils permanently enlarged, and so it does; but this event, though common in adults, is uncommon in children. A large number of children have enlarged tonsils, who never suffered from quinsy, and in them, *debility* and a strumous condition of the system seem to be the most frequent causes.

Symptoms.—The first thing that usually draws attention to the state of the throat, is the loud snoring of the child during sleep, the thickness of his voice, and his indistinct articulation. When the child happens to have a cold, these symptoms are aggravated. The irritation produced by these masses often sets up a most harassing cough, hacking,

short, and dry, — which occurs in frequent paroxysms. When the mouth is opened and the tongue depressed with the handle of a spoon, the enlarged tonsils are readily seen as two large pale-red fleshy masses, projecting from each side of the throat, and sometimes so large that they meet in the middle or even press against each other, almost entirely blocking up the free passage for food or air that should exist there. Sometimes one is much larger than the other. Enlarged tonsils are very liable to fresh attacks of inflammation from every passing cause, especially exposure to damp cold.

Many miseries accompany this condition of things. Swallowing is rendered difficult; the voice is husky and indistinct, sounding as if the child was speaking with something in his mouth; his breathing is laboured, from the impediment offered by the swollen masses to the entrance of air. Distressing difficulty of breathing, and even suffocation has been known to occur, from the accumulation and entanglement of sticky, stringy mucus around the swollen parts.* Sometimes deafness is caused either by the pressure of the enlarged tonsils against the two little tubes that lead from the throat into the back of the ear (called the *Eustachian tubes*), or from the diseased state of the mucous membrane having crept up into the ear through these tubes. Deafness thus produced is called "throat deafness."

If this condition of the child is not relieved, these evils are liable to follow:—the difficulty of swallowing leads to impaired nutrition and emaciation; the difficulty of breathing causes insufficient expansion of the chest, and consequent flattening of it; the impediment to speech gradually tends to form a permanently defective articulation; and the

* A case is related by Mr. Shaw, where the difficulty of breathing thus occasioned was so urgent, that it became necessary to make an opening in the boy's windpipe to preserve his life.

diseased condition of the mucous membrane of the Eustachian tubes (before named) may propagate itself in the interior of the ear, and lead to persistent deafness. How much trouble to spring from so small a cause!

Management.—(See Note, p. 257.) The enlargement of the tonsils of a weakly child, if it is not more than slight, diminishes as he gains health and strength, and altogether vanishes at puberty. But if the case demands relief, there are two classes of treatment requisite, namely, local and constitutional. The constitutional treatment consists in seeing that his general conditions of life are good. It is a disease of debility, and must be dealt with accordingly. The child should have a nourishing diet, comprising a good allowance of animal food; he should have plenty of judiciously regulated exercise in the open air, and a daily cold bath in summer or a tepid one in winter, if he can bear it, with a brisk dry rubbing afterwards. His throat should not be muffled up, or it will become more delicate, but merely sufficiently protected during inclement weather.

In addition to this, the use of cod liver oil (see p. 321) or of the syrup of the iodide, or the superphosphate of iron (see p. 175), may be employed for some time, if the services of a medical man cannot be obtained. The above remedies in a case of this sort are, however, *food* rather than *medicine*. It is necessary to bear in mind and to guard against the constipating action of the iron.

The local treatment consists in making some application to the enlarged tonsils themselves, or even in the removal of them. The growths will nearly always dwindle in size under the daily use of the tincture of iodine, or of a solution of nitrate of silver (20 grains of the nitrate dissolved in 1 ounce of rain water). Since it may often so happen that the services of a medical man to apply this every day cannot be had, I will state how it is done. It is very simple. If the child is not old enough to be induced to

hold its own head still, let it be held steadily by some one else. Place the child's face in a good light, and sit in front of him. When his mouth is open, depress the tongue with the handle of a silver spoon or with a paper-knife held in the left hand, and when a good view is obtained of the tonsils, paint them all over with the application prescribed, with a fair sized camel's-hair paint-brush, held in the right hand. Do not fill the brush so full that it drips at all. To see this once done by the doctor is, however, worth all the description in the world. Endeavour to persuade the child to make no attempt to swallow for two or three minutes after the application. This may require to be done perseveringly every day for some time.

Another simple plan that has often done good, is to make as long a tube as possible out of a large quill; partly fill it with finely powdered alum; pass one end of the tube well to the back of the child's mouth, at the same time depressing his tongue with a finger; apply the lips to the other end, and blow the powder on to the enlarged tonsils. This might be done every day.

If, however, means of this kind fail, and if the annoyance or detriment of the complaint is great, recourse may be had most safely and advantageously to the removal of a portion of each tonsil. If the doctor proposes this, the mother should comply. It is a perfectly safe and not by any means a painful operation, and affords immediate relief. It is not necessary to remove more than *a portion* of each tonsil, as the part that is left usually contracts and lessens during, and after, the process of healing. Among the very numerous cases upon which I have thus operated, I do not remember one in which any bad results occurred, or in which considerable benefit was not gained. There is, I believe, a popular idea entertained by many, that the removal of the tonsils may become the cause of sexual impotence in the male. There is not a vestige of truth in it.

CHAPTER XXII.

DIPHTHERIA.

THIS disease, which is one of the most deadly from which children suffer, and which often sweeps off whole families at a time, is of such a character that a considerable degree of medical knowledge is required intelligently to understand it. I only propose in what follows to sketch an outline of it sufficient for purposes of recognition.

Nature of the Disease.—As almost everyone knows, three main passages open out from the extreme back of the mouth; one proceeding upwards into the cavities of the nose, another leading downwards through the larynx (or organ of the voice) and windpipe into the lungs, and a third, the gullet or swallow, leading down into the stomach, and situated immediately behind the last named. The space where all three meet (called the *pharynx*) can be easily seen when the mouth is opened wide, and the tongue held down, while a long breath is drawn in. It is on the mucous membrane lining this space and covering the tonsils, that the stress of the disease seems to fall. It is a peculiar form of inflammation producing layers of a sort of dirty white exudation or film, on the parts that it attacks. But the inflammation may extend from the mucous membrane of this space (the pharynx), upwards to that of the nose, or downwards into the windpipe, and even into the lungs. This local inflammation, however, is only the outcome, or result, of the working of a specific poison in the blood; just as the poison of measles, after it has worked in the system for a definite time,

produces its characteristic rash. Sometimes the disease occurs only here and there in isolated cases, and at others it comes as an epidemic, dealing destruction on every side.

Is it Infectious?—Yes, decidedly; though the infection does not appear to be very widely diffused, or to be easily carried about by persons or objects that have come in contact with the sick. Infection seems to be given off for some long but uncertain time by those who are convalescent. It is impossible to say when a child is free from infection; I think at least a month should be allowed for purposes of safety.

Period of Incubation.—(See p. 264). A child has been known to fall sick with it less than thirty hours after exposure to infection, while not more than eight days has been known to elapse before the appearance of the disease, in the case of one who has been at once removed from the influence of infection. If the child is exposed to infection for some time, the disease may not show itself for a much longer time than eight days after the date of the first exposure.

Causes.—Generally, direct infection. When the disease is epidemic, it is impossible in the present state of knowledge to say what the cause is. It often occurs as a sequel of other complaints, being apparently induced or favoured by the debilitated condition of the system. It sometimes grafts itself on to other diseases, and becomes manifest during their course;—as during measles, scarlatina, typhoid fever, and erysipelas. A peculiar predisposition to it exists in the constitutions of some children.

Symptoms.—Diphtheria sometimes occurs in a form so mild as almost to escape notice, when the symptoms are somewhat thus;—slight feverishness accompanied by some degree of sore throat, but with great prostration of strength;—indeed the depression is out of all proportion to the other

symptoms. There is slight redness and some little swelling of one or both tonsils, on which, in the course of two or three hours, white specks may be seen. These specks, after extending themselves a little, soon disappear, and the child is presently well, though he regains strength much more slowly than the trifling nature of his symptoms would seem to account for.

But the disease is usually much worse than this. Take an average case. For a day or two there is so much fever and heat of skin, headache and thirst, yawning, lassitude, pains in back and limbs, together, perhaps, with chilliness and a little sore throat and swelling of the glands under the jaw, that the mother begins to fear scarlet fever may be setting in. But no rash appears. If she were to chance to look into the mouth at the tonsils and at the back of the throat, she would find them red and swollen, but not intensely so. After a time, however, both tonsils and the back part of the palate and uvula,—that little tongue of flesh that hangs down from the back of the palate in the middle line,—are seen to be covered altogether, or in large patches, *with a thick film of greyish-white substance*, or false membrane, developed by the inflammation. The tongue is generally red at the tip, but covered, more and more thickly the farther back you look, with a foul white coating. At the same time also there is a rather profuse discharge from the nose, from the presence of inflammation there also, which irritates and reddens the nostrils and upper lip over which it passes. The temperature is high, and may rise as high as 103° or 104° by the evening of the third day. There is considerable difficulty of swallowing, and sometimes a short spasmodic cough, while the voice is hoarse and indistinct. The prostration of strength is extreme, and increases as the disease goes on. The white substance which has been seen sticking to the sides of the throat, does not long retain that

appearance. It changes to greyish yellow and breaks up, hanging in shreds and exposing a raw and ulcerated surface beneath; the tongue also has become even fouler, and the breath has the most offensive smell. Gradually the surface of the throat becomes clear, and the exposed mucous membrane sound and healed; the tongue cleans and some little appetite returns. If the case is going to do badly, the white exudation will often form again after it has been once cleared off. At this period the poor child's strength is at its lowest ebb, and it often seems as though he would sink from sheer weakness; but convalescence now sets in, and gradual, but very slow, progress towards health is made. In fatal cases the tongue and lips become brown and dry, vomiting occurs, fresh white exudation takes place on the throat, swallowing becomes more difficult, so usually does the breathing also; it becomes impossible to rouse the child from his lethargy, his strength gives way, the eyes become glazy, the features pinched, the skin cold, and the evacuations are passed into the bed. Death soon relieves his sufferings.

Prospects of the Case.—Diphtheria is nearly always a dangerous disease, and no case of it can be regarded without anxiety. *Bad symptoms.*—A short duration only of the introductory fever before the disease shows itself in the throat. A very scanty secretion of urine: if the child passes absolutely none for twenty-four hours, he will die. Any rise of temperature after the fifth day. Obstinate refusal to take food. Diarrhœa or vomiting during an advanced stage of the disease. The occurrence of difficult croupy breathing, or huskiness of voice. Sleeplessness and extreme prostration of strength. *Good symptoms* may be inferred to exist, if all those just specified as bad are absent; also if the disease is obviously running a mild course.

Distinctions.—It is scarcely possible to suppose that diphtheria could be mistaken for *quinsy*, or *vice versa*. The absence of the white exudation in the throat in the latter case, is quite sufficient distinction. But diphtheria and scarlet fever have many points of resemblance, though there are certain differences so marked as to make distinction easy. Let us compare them. There is—

In Scarlet Fever.	In Diphtheria.
A distinctive rash appearing on the second day of illness.	No such rash, though in a few cases a transient blush over the surface is perceptible.
The tongue is first white and dotted with red spots, and afterwards shows the appearance described on p. 265 as "the strawberry tongue."	The tongue is red at the tip and covered with a thick creamy coating, afterwards becoming foul and of a dirty yellow. No red spots.
The redness of the throat is evenly and widely diffused over the whole surface. No thick ashy-coloured exudation in the throat.	The redness of the throat occurs in vivid *patches*, here and there. A thick ashy-coloured exudation always present to a greater or less extent.

A condition almost identical with *croup* is produced when the inflammation of diphtheria extends down into the organ of the voice (or larynx) and into the windpipe.

Nursing.—The directions given in the chapter on Disinfection (p. 258) must be put in force. The child must of course be put to bed, and *kept* there, until fairly advanced in convalescence. The atmosphere of the room must be warm and moist, so that it be soothing to the air passages; moisture is produced by keeping a kettle with a long spout projecting into the room boiling on the hob. (Nash's Bronchitis kettle answers this purpose well.)

The whole of the nursing and the treatment is addressed to two main objects, (1.) the relief of the local mischief in the throat, and (2.) the supporting of the strength.

1. Hot linseed poultices, applied as directed on p. 268, and hot fomentations must be in constant use to relieve the

swelling and pain of the glands and throat. If the child is old enough to manage it, inhaling the steam of hot water, or of boiling water to which vinegar has been added, will give him great relief; this may be repeated as often, and as long as it does good. If swallowing becomes very difficult, the sucking and swallowing of little pieces of ice does more to render it easier than anything else; meanwhile the inhalation must be discontinued, though the poultices, &c., may be still used.

2. In this disease, which prostrates the strength perhaps more rapidly than any other, adequate nourishment is of even greater importance than medicine. Unfortunately, it is very difficult to induce the little patient to take much, from the pain caused by swallowing, therefore it becomes necessary to *concentrate* the nourishment, and to give nothing but what will tell in supporting the powers of life. Strong beef-tea (or Brande's essence of beef) must be given from the outset, not in large quantities but very frequently; fresh milk iced, or the same with an egg beaten up in it and a little brandy added, will also be good. The recipes, 16, 17, 21, and 22 (Appendix A), may also be used if the strength is much prostrated. The administration of stimulants ought always to be under medical direction, for they require as accurate an apportionment of doses as drugs; but if no doctor is in attendance, I can only say that this is a disease in which stimulants are essential, and may be as a rule freely given, and in which their use seems generally called for very early in the malady. Strange as it may appear, it is none the less a fact that children of four years old, suffering under this crushing disease, will take six ounces of wine and one or two ounces of brandy for days together, not only without being any the worse for it, but to the positive saving of their lives. Port wine, champagne, or brandy, are the most useful forms of

stimulants, especially the former, which in all cases of bad throat of a low type is invaluable, and may be taken even by young children in considerable quantities. But whatever stimulant or nourishment is given, "*little and often*" is the motto. Sometimes, however, the pain caused by swallowing makes the child obstinately refuse all food. In that case, our only hope of tiding over the worst lies in the frequent administration of injections (by the bowels) of very strong beef tea and port wine warm; or the recipe No. 17 (Appendix A) may be used. The method of giving an injection is described on page 164.

Convalescence is very slow, and the child will require all the care and attention due to acute illness long after the disease has to all appearance left him. As soon as he is strong enough to be moved, an exhilarating change of air will be almost essential to his complete recovery.

Treatment.—(See Note on p. 257.) A mild laxative—a dose of effervescing citrate of magnesia will do—is generally requisite at the outset, during the introductory fever. The bowels should be sufficiently but not strongly acted on. (I.) As regards the throat. If the child is old enough to use a gargle, one made by adding half an ounce of the *solution of chlorinated soda* to six ounces of water, or a tablespoonful of Condy's fluid in a tumbler full of water, and used several times a day will be very beneficial. In addition to this (I am of course supposing that a doctor's services cannot be obtained) it is most useful to paint the surface of the mouth and throat, wherever the white exudation is coming, or is, or has been, with the solution of perchloride of iron,* twice a day as long as the disease is manifest in those parts. (II.) As regards combating the general disease, some such medicine as is mentioned in Prescr. 44 will be more efficacious than anything else in the absence of medical advice on the spot.

Complications.—Diphtheria is very liable to be followed by paralysis, which however is generally amenable to treatment. The disease of the throat may extend into the larynx or the windpipe, in which case it is nearly always fatal.

* It is known to druggists as the Liquor Ferri Perchloridi.

Diphtheria and croup are sometimes so commingled that they are indistinguishable from one another. This also is a very fatal condition.

Mortality.—In the year 1870 there died of diphtheria in England 2,699 persons. Of this number 1,458, or more than half, were under five years of age; and 2,414, or more than three-quarters, were under fifteen.

CHAPTER XXIII.

CROUP.

Medical Name.—Trachitis, or Cynanche Trachealis.

Nature of the Disease.—This common and alarming disease consists in inflammation of the mucous membrane that lines the organ of the voice (or larynx). The larynx is situated at the top of the windpipe, and is contained within that hard and often prominent body that can be felt in the neck, just below where it is joined by the chin. In some cases the inflammation extends down into the windpipe, and even into the lungs. The inflammation causes the exudation of a white incrustation, or false membrane, on the surface affected. Now all the air that enters our lungs has to pass through the larynx, and the passage through this structure, is in one place so narrow as to be a mere chink, like the slit in a money-box.* It is very obvious then that the swelling of the membrane lining this chink, which is produced by inflammation, and the additional thickening by the white false membrane above mentioned, would suffice almost or altogether to close the aperture and suffocate the patient. Herein lies the danger.

Predisposing Causes.—Cold, and especially *damp* cold, as after heavy rains with north-east wind, seems to be the most prolific cause of croup. It is commoner in low and moist localities than elsewhere; it is common in the

* This slit is called the *rima glottidis*, or chink of the glottis.

country and rarer in towns.* It is most often met with in children during their first and second year, and it is commoner during the first five years of life than at any other time. More boys suffer from it than girls, and more children of a nervous and sanguine temperament, in a sound state of health, than any others.

Symptoms.—Cases vary very much; we must take an average one. The onset of the disease, though sometimes sudden, is usually preceded by fever, thirst, hard cough, *hoarseness*, lassitude, and running at the nose,—a severe "cold" in short, save that hoarseness is a rare symptom of a mere cold. Sometimes, if unable to explain its feelings, the child clutches at or rubs its throat as if uneasy there. When this state of things has lasted for from twenty-four to thirty-six hours, there is a change. The child awakes suddenly—for it is nearly always at night—in a state of fright and agitation; he feels suffocated and breathes hurriedly and laboriously, the cough has become constant, ringing and brassy, a sound once heard never to be forgotten. His face becomes suffused and flushed, and very anxious; he will not lie down, and is restless, and wants to get out of bed. Soon every breath he draws becomes long, difficult, and crowing, which is unmistakable and characteristic of the disease. During the rest of the night the metallic cough and crowing breathing probably continue in paroxysms, and the morning finds the little sufferer quite worn out but slightly better, so much so indeed as to allow him to drop off to sleep for a time. But the amendment does not last. As the day goes on, the fever increases, the temperature rises, there is a tormenting thirst, the tongue becomes thickly coated, the pulse gets harder and faster, the voice is

* With much wider opportunities of observation, I do not see as much croup in London in five years, as I used to see in the fens of Cambridgeshire in one year.

become more and more distressing. By this time the poor child is extremely restless, he grasps at his throat as if to tear away some obstacle, he tosses himself wildly about, and the bed-clothes are all thrown aside. During the paroxysm the head is thrown as far back as it will go, if possible to widen the air-passage.

Speaking causes pain, and frequently the child refuses to speak, or if he does it, it is in a whisper. Appetite is lost, but he will always drink, but it is hurriedly and in gulps. Throughout the whole disease, the child is worst at night, and at its best early in the morning. If the case is going to do favourably, recovery usually begins about this time; but any tendency to go from bad to worse must now exhibit its direst form. The paroxysms follow one another so rapidly that there is scarcely any interval between them, the cough becomes altered, so that the child seems to cough in a suffocating whisper, the breathing increases in difficulty, and the power of speech is gone. Now he becomes extremely drowsy, but starts and wakes in terror, and grasps at any object near; clammy sweats break out, the head is thrown back and the nostrils are working; the eyes are staring and glassy, and the countenance livid. Insensibility mercifully comes, in most cases, to obliterate his latest agonies and render painless the parting of body and spirit.

Is it Infectious?—No. When two or three children of one family happen to have it together, it is because they have all been exposed to the same exciting causes.

Prospects of the Case.—These are such as always to give rise to serious alarm, and in the majority of cases they are bad from the outset. The prospects are very gloomy, if the paroxysms of cough and difficulty of breathing rapidly increase in number, duration, and intensity; if

the intermissions are few, short, or altogether absent; if the fever is high, and if the lips and tongue become covered with brown incrustations, while the face is livid and the eyes sunken. If a relapse should occur, the danger from it is very great; but a second distinct attack of croup is less serious than a first.

Nursing.—The fact that very great advantages are gained by a disease being recognised early, and by medical aid and treatment being early summoned and applied, has been already dwelt upon. But I wish to insist upon it more strongly still with reference to croup. Nay, more,—in the majority of cases, unless they *are* used early, remedial measures are but of little avail. Directly a child is suspected of croup, even though the suspicion afterwards proves to have been unfounded, send for the doctor. It is better to create a false alarm, or to send too early, than too late. If the doctor's coming is delayed, as very often from various reasons it must be, the interval of waiting is not to be spent in idleness; time is too precious. Put the child into a warm bath (see p. 179) for eight or ten minutes, dry him with hot towels, then wrap him in a hot blanket or a warm flannel nightgown, and place him in bed. Keep the atmosphere of the room warm (temperature 65° to 68° Fahr.), and moist also, by keeping a kettle boiling on the fire with a tin tube applied to the spout to direct the steam into the room. In cases that threaten to be at all severe, it is better still to construct a blanket tent round the bed, and convey the steam by suitable means into the enclosure. In a case where the attendance of the medical man is likely to be unavoidably delayed for two or three hours, or in a case where the delay is shorter, if the child's symptoms are acute, I think the mother will be quite justified in proceeding to the next remedy and giving the child an emetic. The benefit of an emetic given early and acting sharply is often

immense. Ipecacuanha wine is a safe emetic, but antimony is a better one. If an emetic is to do good it must act thoroughly. In a case of croup, the emetic dose of ipecacuanha wine is from half a teaspoonful* to a teaspoonful and a half, according to age, repeated every ten minutes, until the child is obviously relieved. The dose of antimony wine is from one-third of a teaspoonful to a whole teaspoonful, according to age, repeated as directed above, until relief is obtained. Another measure of great use is this. Take a good-sized sponge, dip it in water as hot as the child can bear, and apply it over the upper part of the throat and neck; re-soak and re-apply it every two or three minutes for half-an-hour at a time. This simple remedy is often productive of singularly good results. The paroxysms of cough and laborious breathing are also often relieved by hot linseed poultices applied one after another to the back of the neck and between the shoulders. During the earlier portion of his illness, which is usually characterized by fever, high temperature, and a white tongue, the child is to be kept upon a low diet,—milk, arrow-root and milk, barley water, and so forth; but when the case is doing badly and the powers of life are failing, the doctor will probably order beef tea and wine to be given freely, but only too often without avail.

Treatment.—The parents whose child becomes afflicted with croup and who cannot obtain medical assistance are in a pitiable and well-nigh hopeless condition. Very little advice can be given more than what has been given, that would be of any service to non-medical persons in such a juncture. In a case thus bereft of hope from medical skill, all that can be done is somewhat thus. If the attack is at all severe, the child must be made to vomit every hour, until manifest relief is gained. This may be done by such doses of antimony wine as are mentioned above; but if the dose ceases to act, a little ipecacuanha (see p. 169)

* Supposing the teaspoon to hold one drachm.

may be added to it: but perhaps the most certain emetic in croup is the one specified in Prescr. 50. Also, if the attack is severe, a grain of calomel in the evening and another in the morning, each being followed after four hours by a dose of castor oil, may probably do good. If the paroxysms are very distressing and no help is at hand, a parent may possibly be justified in applying one or two leeches (see p. 190); one for a child of two to four years old, or two for a child of four to six years old. Under such circumstances they must be applied on the uppermost part of the breast bone, which forms a firm surface to make pressure upon in stopping the bleeding.

On Operation.—It often happens that cases of croup run on to such a desperate condition, that no hope remains of saving life except in operation. Wherefore if the surgeon proposes it, the mother should not demur a moment, nor ask him to "wait a little longer." He will not propose it until the time arrives, when delay becomes fatal. As far as the child is concerned, it is very safe and simple, and not more than two teaspoonsful of blood are lost. In my own hands and in those of others, it has repeatedly been the means of saving an otherwise lost life. It consists in making an artificial breathing hole in the windpipe, which becomes closed again when the child recovers.

Mortality.—In the year 1870, 4302 children died of croup, of which 3663 were under five years of age. The largest number of deaths was amongst those in their second year.

CHAPTER XXIV.

CHILD CROWING OR SPURIOUS CROUP.

Medical Name.—Laryngismus Stridulus.

Nature of the Disease.—In the last chapter a very brief description will be found (p. 406) of the structure of the throat. After referring to this, my meaning will be understood when I state that this disease is due to spasmodic closure of the chink of the glottis, whereby, of course, the air is shut off from the lungs, until the spasm relaxes; placing the little patient, while it lasts, in danger of suffocation. It is irritation of some portion of the nervous system that causes this spasm.

Causes.—There is a very close connection and similarity between this malady and convulsions. Whatever cause is capable of producing convulsions (see p. 339), may produce child-crowing also. It is particularly common during the time of teething, and is undoubtedly often caused by it. Dr. West states that out of thirty-seven cases of it under his care, thirty-one were from this cause. Perhaps the gums are not swollen, nor any tooth near the surface at the time of the attack, but it may arise from teething notwithstanding. The disease is commonest in nervous and excitable infants, in those who cut their teeth late, and whose bones are weak and ill developed, evidenced (if by nothing else) by the non-closure of the usual opening in the top of the skull until a late period;—in a word, ricketty children most frequently suffer from it. It is most often met with between the ages of six and nine months. After twelve months it becomes

less and less common, up to the age of five, after which it is scarcely known.

Symptoms.—It generally comes on by degrees. An infant is noticed to be drooping, to be indifferent or captious about the breast or bottle, to be fretful, and restless at night, and to show many of those signs of *malaise* that teething produces. After a time—usually when the infant is awaking from sleep, or it may be when he is sucking or during a cry—he makes a strange crowing sound with his breathing. It is something like the hoop of hooping cough modified, and something like the noise of croup. It cannot be described, it must be heard, and when once heard will always again be recognised. If the first "crow" heard should be very loud, the mother will naturally take fright and think her child has got the dreaded croup; but generally it is not loud at first, and only becomes so as the disease gets worse and the crowing more frequent. It will soon be noticed that the child always has a paroxysm of crowing on awaking from sleep, that sucking, or swallowing, or excitement, or crying, is very apt to bring it on, and that it occurs more often by night than by day. At first the child's health in the intervals does not seem to suffer much, but if the disease does not pass off while in this milder condition, worse symptoms follow. A paroxysm of difficult breathing comes on, the head is thrown back, the face becomes livid, there is twitching of the features, and suffocation seems imminent. All this passes off, however, with a long, loud crow, and then perhaps a cry. But it recurs, again and again, and more and more frequently. If the disease does not now yield, the condition of the child becomes such that its existence is a continued struggle for breath, and it either dies in convulsions or perishes from suffocation.

Distinction.—Spurious croup may be readily distinguished from genuine croup. In the former, or child-

crowing, there is neither cough nor fever, nor *continuous* difficulty of breathing; in the real croup all three are present. In child-crowing the attack both comes on and passes off suddenly; in croup it does neither. In the former the child seems quite well in the intervals between the attacks of crowing; in the latter the intensity of the symptoms is only slightly modified in the intervals between the paroxysms.

Prospects of the Case.—Usually favourable, though the child can seldom be said to be absolutely out of danger while the disease lasts. A *very* small number of those attacked by the disease die of it. It is a bad omen, if the attacks steadily increase in frequency and severity, unchecked by treatment.

Management.—(I.) *During the attack.*—If it is long or severe, the child must be treated very much like an apparently stillborn baby, by the alternate application of hot and cold water, and slapping of the chest with a wet towel (see p. 216); a dash of cold water over the head and face; the passing of the finger down the back of the throat, so as to excite vomiting; or smelling salts may be held to the nose. If the child "holds his breath" for a perilously long time, the hot bath or artificial respiration must be had recourse to (see p. 217). II. *In the intervals.*—Endeavour to ascertain the cause, and address the management of the child to the alleviation or removal of it (see Teething, p. 253). See that the *feeding* of the child is being conducted on the principles laid down in the first chapter of Part I., according to its age: this is most important. It is best for *an infant* suffering from this complaint to be *nursed;* if its mother has not sufficient milk, either a wet nurse must be procured, or it must have in addition asses' milk, or the artificial milk mentioned on page 25; but not "*food*," so called. Let the baby be warmly, but lightly clad,

and let it live in a pure, cool atmosphere; but above all, if possible, give it *change of air*. I have often known this measure alone to effect a cure. Avoid every source of emotion and excitement for the child.

Treatment.—(See Note on p. 257) After a fit of crowing is over, examine the gums; if they require lancing, it must be done (see p. 255), even though the services of no medical man can be obtained. Counteract the constipation that nearly always exists by some mild laxatives; castor oil will often do, but, as a rule, nothing is better in these cases than four or five drops of aloes wine (for an infant from six to nine months old) in a little milk and sugar every day, or every other day: sometimes the bowels can be got to act by rubbing the belly twice a day with a liniment, such as Prescr. 2. Dr. Marshall Hall used to strongly advise the daily use of an enema of warm soap-suds (see p. 164) in this disease. If no medical advice is to be obtained, a useful form of medicine to soothe the irritated nervous system and abate the symptoms, is given in Prescr. 48. When recovery is well in progress, a tonic will do good, administered for a few days; and none is better than some such form as Prescr. 29.

Mortality.—In the year 1870, in England, 537 children died of this disease. They were all, except eleven, under five years old. By far the largest proportion of deaths occurred among those in their first year.

DISEASES IN THE CHEST.

CHAPTER XXV.

Section I.—On Ordinary Cold and Cough.

Medical Name.—Coryza or Catarrh, according to the part affected.

Nature of the Complaint.—It consists of congestion (which may be roughly defined as inflammation in a very incipient or modified form) of the mucous membranes lining the eyelids, cavity of the nose, and throat, extending sometimes down into the air-tubes of the lungs. When the complaint is limited to the cavity of the nose, it is *coryza;* when it affects the eyes, throat or air-tubes, it is called *catarrh.* The congestion usually goes through three stages; the first, of heat, swelling, and soreness of the membrane; the second, in which it pours out a thin, watery, irritating discharge; and the third, when the discharge becomes thicker and more scanty, whilst the ailment passes off.

Causes.—Usually what is termed "taking cold," is the origin of the evil. The circulation becomes disturbed by some portion of the body becoming chilled and being kept in that state for some time; or by the body, when heated and *in process of cooling*, being exposed to cold. Thus the blood is driven from the surface, and some internal parts—most usually those mentioned above—become unduly filled with blood, and congested. But it is quite possible for more

important parts, such as the lungs or the bowels, to be affected, and then the results are vastly more serious.

Symptoms.—It would be almost an insult to a mother's powers of observation, for me to detail the symptoms of an ordinary cold in the head, sore throat, or common cough,—for all these are included under the generic name of "a cold,"—but there is a form of cold (a coryza) from which infants of one or two months often suffer, and that is apt to cause anxiety in unexperienced mothers, upon which I will say a word or two. It is preluded by slight feverishness; soon sneezing, watering of the eyes, and a thin discharge from the nose follow; and after a time the discharge gets much thicker and forms deposits, blocking up the nostrils. At the same time the mucous lining of the nostrils is much swollen, every breath causes a snuffling sound, and the passage of air through them is so obstructed that the child has to breathe through his mouth, an act which greatly interferes with his sucking and naturally makes him cross; he cries not only from irritability, but from hunger.

Distinctions.—It should be borne in mind that some eruptive fevers, such as measles (p. 275) and scarlet fever (p. 264) come on with symptoms closely resembling an ordinary cold or sore throat. There are no signs by which a positive and unfailing distinction can be made between the two, but if the child is sickening for a fever, the temperature and pulse are usually higher, and the feverishness, loss of appetite, and prostration of strength greater than in the onset of an ordinary cold. If any doubt is felt, a doctor should be sent for to decide.

Treatment.—Use the warm bath, or the warm foot-bath; or if the cold be severe and the child old enough (six or seven years), the warm mustard-and-water foot-bath. Then put him into a warm bed, and give him some hot milk or arrowroot and milk (thin), or some of the concoction known

as "posset," or the less tasty article, gruel, to promote the action of the skin and kidneys. This will be assisted also by giving a little spirit of sweet nitre (see p. 166) in water. A sufficient action of the bowels should be obtained by means of a laxative, such as the sweet solution of senna (see p. 162). The inhaling of the steam of boiling water relieves the oppressive "stuffing of the head" of a bad cold. The child should be kept in a warm, but not a close or hot, room, of a uniform temperature and moist atmosphere. The diet should be nutritive, but for the most part liquid or semi-liquid. If there is sore throat, apply linseed poultices as directed on page 394. If there is any cough, let the poultices be applied to the upper part of the chest and front of the neck, and if the cough is very troublesome and the child old enough, it may be needful to use the mustard-and-linseed poultice. A little ipecacuanha wine or syrup of squills (p. 170), with some solution of acetate of ammonia or spirit of mindererus (p. 167), will facilitate the coughing up of the phlegm, if difficult. A useful form for a cough mixture is given in Prescr. 45. Though it is necessary to closely watch and to cure all colds, since a neglected one has often and often progressed into bronchitis or inflammation of the lungs, a large majority of them need no treatment beyond ordinary care and good nursing. In the coryza of infants, the child must simply be kept warm and *dry*. Care must be taken, by great cleanliness, and by the use of cold cream, or a little olive oil, with a small camel's hair paint brush, to prevent the formation of crusts in the nose. If the nostrils get blocked and prevent the infant sucking, the milk must be drawn off if possible, and he must be fed with a spoon. As the condition of stoppage is usually only temporary, it is a pity to "dry up" the milk, or to wean the child, if it can be avoided. If the snuffling or the stoppage is persistent or chronic, it proceeds from an hereditary constitutional disease, and can only be cured by medical skill.

Section II.—Influenza.

It is not uncommon to hear persons speak of an "influenza cold," which is a term used to denote merely a severe and prostrating cold. But influenza, though in many respects resembling ordinary catarrh, is quite a distinct disease from it, and is of a more serious character. It is not peculiar to children, but affects individuals of all ages. It occurs manifestly as an epidemic, affecting large numbers of people at one time and in one place, just as cholera might do, without any obvious cause. There have been severe epidemics of it in this country in 1833, 1837, 1847, and 1857, attended by a considerable mortality. Thus far, medical men are unable to state with any certainty or accuracy, what are the causes of this singular malady.

Symptoms.—Influenza occurs in many forms. In one, we see a child with most of the symptoms of an on-coming severe cold, but the burning heat of the skin, the rapidity of pulse, the extreme depression of strength and spirits, are all far more marked than in any catarrh. Difficulty or tightness of breathing is also complained of, there are painful paroxysms of coughing, and appetite is wholly gone. In another form, the burning skin, intense thirst, rapid pulse, and prostration of strength are attended by only a very slight affection of the chest, but an overpowering drowsiness comes on; the child seems to have no strength to move, takes no interest in anything, cannot be kept awake, and drops off from one heavy sleep into another for perhaps twenty-four hours, when the attack seems to have spent itself, and recovery takes place very rapidly. In the epidemic of 1857, the most marked and serious symptom in a large number of cases, was the prostration of vital power. The attack set in with symptoms of severe cold attended by difficulty of breathing, cough, and high fever, but after two

or three days the fever suddenly departed, leaving the child in a state of great prostration, with a cool moist skin, a feeble pulse and laborious breathing. The little patient lay pale almost to lividity, and continually dozing, though he was conscious when roused. Then, if a change for the better did not commence, the exhaustion continued to become more and more overpowering, until the last spark of life was quenched, and often in a period varying from two days to a week from the onset of the illness. Bronchitis and inflammation of the lungs very often graft themselves, as it were, on to influenza, thereby greatly enhancing the peril of the complaint. A *very large* proportion, however, of cases of this disease easily recover.

Is it Infectious?—This is a point which has not yet been positively settled. Until it is proved *not* to be contagious or infectious, it is best to regard it as if it was so. "The instances are very numerous, too numerous to be attributed to mere chance, in which the complaint has first broken out in those particular houses of a town at which travellers have arrived from infected places."—(Sir Thomas Watson.) The *epidemic* nature of the malady must also be borne in mind.

Nursing.—The child must be kept in one room, which must be warm but well ventilated; he is better on a sofa than in bed, unless the attack is severe, but he must be thoroughly defended from chills and draughts. It does good to keep the atmosphere of the room moist by means of the steam proceeding from a long spouted kettle boiling on the fire. The direct inhalation of steam also frequently gives great relief. Poultices of mustard, or mustard and linseed, applied to the affected part often do good when there is much sore throat or tightness of the chest and difficulty of breathing. The fever and great heat of skin are abated for the time by tepid sponging of the body and

limbs. The diet at first must be rather sparing and low; indeed, the child will take nothing but drink. He may have milk, or milk and soda-water, barley-water and lemon-juice, raspberry vinegar and water, or any refreshing drink of this kind; and if the fever is high, they may be taken *iced*. Grapes, oranges, or the pulp of any ripe, fresh fruit, may be taken in moderation. When the depression of strength becomes marked, it must be met by beef-tea, nourishing broths and milk, given frequently, and perhaps also by some weak white wine whey. When the fever has passed off, the child must be encouraged to eat a light but solid and nutritious diet; only a small quantity, however, should be taken at a time, but often.

(See Note on p. 257.) A large number of cases require nothing more than careful nursing. In others, slightly more severe, let the bowels be gently cleared at the outset by a mild purgative (see pp. 161—163). After this, an agreeable and suitable medicine is a little nitrate of potash (nitre), mixed with some powdered loaf-sugar and lemon-juice and diluted with water, so as to make a drink. (The dose of the nitrate for a child of from two to three years old is about three grains every four hours.) Some such mixture as that mentioned at Prescr. 10 may succeed in producing perspiration, if the above does not act. If the chest is much affected and the breathing tight, a mixture like Prescr. 15 will probably be useful; but if there is also great depression of strength, Prescr. 51 is to be preferred. Wine is often required (subject to medical directions) wherewith to combat extreme prostration.

CHAPTER XXVI.

HOOPING COUGH.

It is a somewhat singular thing that this disease, which is popularly considered of so small account as to require no treatment, or which, at best, is handed over to traditional remedies administered by amateurs, or old women, is not only the commonest, but one of the most fatal maladies from which children suffer. There are only four diseases which are more so,—Convulsions, Scarlet Fever, Diarrhœa, and Inflammation of the Lungs (see p. 428). But the explanation lies in this. There are two forms of the disease, the simple and mild, and the severe or complicated; a large majority of all cases belong to the simple class, which is very seldom fatal, while a great proportion of the severe cases are fatal.

Medical Name.—Pertussis.

Nature of the Disease.—The real nature of hooping cough is not so certain or so clear as is that of most maladies. There can be but little doubt that it is *a blood disease*, owing to some poison (derived from infection or epidemic influence) existing in it, and giving rise to certain symptoms. Here conjecture steps in and suggests that the symptoms of an irritated and weakened nervous system,—the convulsive cough coming in paroxysms, the condition of things producing the hoop, and the prostration of strength,—are the direct evidence of the action of the poison on the constitution, while the symptoms of catarrh, or "cold," are efforts of Nature to throw off the disease by secretion from the mucous membranes. There is no doubt, however, of

this, that it is a disease marked by great relaxation and lowering of nervous energy. Like most contagious blood diseases, it usually occurs but once in the same person.

Predisposing Causes.—*The influence of age.* More than half the cases occur before the end of the third year; after the age of five, it becomes less frequent, and after ten, very rare indeed *Influence of sex.* It is both more common and more fatal in girls than boys, by half as much again. It is a disease of all climates, and it does not appear that *the state of the weather* has any special influence in causing its attacks; there have been epidemics of it in June and July quite as severe as in December or January. But weather affects the disease when established, though it will not originally foster it. Thus, hooping cough commenced in the spring often disappears almost or altogether in the warm months of summer, *but* it is very apt to return again in full force in the autumn. And again, hooping cough contracted in the autumn and subsequently lost, will often recur as before under the influence of March winds. It occurs generally as an epidemic, though scattered cases of it are always to be found. An epidemic of hooping cough is very liable to take place directly after an epidemic of measles.

Symptoms.—It generally sets in with symptoms of an ordinary cold in the head and chest, with some feeling of tightness or constriction in the latter region, and slight feverishness. This disturbance of the health soon ceases, but the cough goes on. After a time it alters and becomes convulsive and louder and longer, and gets rather worse towards night. The cough begins to occur in distinct paroxysms, each paroxysm consisting of a series of short, sharp, and rapid expirations continued until the child is purple in the face and on the eve of suffocation, when he suddenly draws breath with a loud and discordant but

characteristic sound—*the hoop*—and begins again, going through the same symptoms over and over, until the free dislodgment of a quantity of sticky phlegm, or vomiting, or sheer exhaustion, puts an end to the attack. The "hoop" is produced by drawing a strong breath through the convulsively narrowed chink of the glottis (see p. 406). It is remarkable that in the interval between the paroxysms, the child seems comparatively well and goes on with his play. His appetite does not suffer, and when the cough has caused him to vomit, he promptly asks for more food. As a rule, he sleeps well, except when disturbed by the cough; the bowels are usually rather constipated, and he is wanting in liveliness, energy, and strength. When the hoop has once been heard, the disease may be expected for about a week to get more severe, the paroxysms of cough to become more frequent and more suffocating, and the hoop to be heard more and more often. It then continues without change for the better or worse for ten days or a fortnight, and then begins to decline. The first indication of abatement is generally the lessening in frequency and severity of the nocturnal paroxysms. The hoop disappears long before the cough, and while any cough, however slight, remains, exposure to cold, derangement of the stomach or bowels, or excitement of mind will bring it back with all its attendant miseries.

This is a sketch of a mild and uncomplicated case of the disorder; but a severe case shows a much gloomier and more painful picture. I have not space to detail every form and feature that the disease may assume, but we may just glance at—

The Complications of Hooping Cough.—Of these, perhaps the commonest and the most fatal is the concurrence of *convulsions* or *inflammation of the brain*. The obstruction presented by the paroxysm of cough to the return of the

blood from the head, thus keeping it unduly full for long periods at a time, probably has much to do with causing these. Next in order of fatality is the concurrence with hooping cough of *bronchitis* or *inflammation of the lungs*, which is answerable for nearly half the deaths from this disease. Bronchitis is particularly apt to supervene in a rickety child suffering from hooping cough. Profuse, frequent, and alarming *bleeding from the nose* is not at all an uncommon complication, and lives have undoubtedly been lost by it (see p. 379). Hooping cough may be complicated by *a disordered condition of the bowels*, evidenced by a white-coated tongue, foul breath, loss of appetite, a distended belly, and unnatural, offensive motions. If these symptoms are allowed to go on unchecked, the child droops and wastes, and ultimately comes to a bad end. A very serious, and usually fatal complication occasionally occurs, called *collapse of the lung*. It is the result of the blocking of a bronchial tube with a plug of tough and tenacious phlegm.

Duration of the Disease.—This varies very much, and is difficult to estimate. Dr. West roughly assigns ten weeks as near the average; two weeks for the preliminary symptoms of cold; four weeks for the paroxysms of cough with the characteristic hoop; and four more, for the gradual abatement and disappearance of the cough. Weakly children usually suffer longer than those who are healthy and robust.

Is it Contagious?—Yes, and also occurs epidemically.

Prospects of the Case.—Simple, uncomplicated hooping cough is very seldom fatal. If the stage of catarrh or "cold" is long, the resulting malady will probably be mild, but it does not always follow that if it is short, the following attack will be severe. *Bad Symptoms*,—a very

violent cough, causing suffusion of the head with blood or bleeding at the nose. Short and imperfect intervals of rest. A bad appetite; very broken and insufficient sleep. Any of the complications above mentioned, but especially the first named. The disease is to be feared if the child is very young,—if it is teething, especially so,—if it is strumous or weakly, or the child of strumous and delicate parents,—and when it comes on after measles or scarlatina.

Distinctions.—It is possible for a child to have genuine hooping cough and yet never hoop. This condition might mislead parents. The violent cough coming in *paroxysms*, with *intervals of perfect relief*, the fulness of blood in the head and the vomiting produced, and the comparatively scanty expectoration, are usually marked enough to distinguish the disease.

Management.—Hooping cough, like other contagious disorders, such as measles or scarlet fever, always shows a tendency to run a certain course unchecked by remedies. All that can be done is to endeavour to guide the child through the malady, and to keep the disease itself within simple limits. In the management, the mother must bear in mind that the disease has three distinct stages, which require different measures. There is the first stage of "cold;" the second of paroxysms of cough and hooping; and the third of manifest abatement of the complaint. *In the first stage:* Let the domestic management of the child be such as for an ordinary cold (see p. 417). *In the second stage:* Let the diet be still light and easily digestible, but *nutritious* also, bearing in mind the state of low nervous tone accompanying the disease. The child must still be protected from cold and *damp;* but if the cough is mild, and if the weather is fine and warm, he need no longer be kept indoors. Gentle exercise in the fresh air does him good, if the case is a mild one; but if the cough is severe, he

cannot be kept too quiet. It is a good thing for his chest to be well sponged every night and morning, back and front, with cold water, but it should afterwards be briskly rubbed with a dry towel, and be thoroughly protected from cold. The use of a stimulating liniment to the chest twice a day (after the cold water, if that is employed) is often very beneficial. (Prescr. 46.) Attacks of difficulty of breathing coming on towards night, or at any time, obtain great relief from the use of the hot bath and the subsequent application of a mustard, or mustard-and-linseed, poultice to the chest. The child should be seated in the bath, and the water should cover him up to the middle of the chest. Five minutes is long enough for him to be in. The state of the bowels may be regulated by giving a dose of some gentle laxative (see pp. 161—163) every day or every second day, until they act. Constipation is always injurious. *In the third stage:* Dr. West considers the stimulating liniments to the chest especially useful in this stage. Change of air, —change of any kind, but particularly to the seaside, is likely to remove the last lingering traces of the disease.

Treatment.—(See Note on p. 257.) The *first stage* seldom requires any medicine at all, or at any rate nothing further than what has been spoken of as suitable for an ordinary cold (see p. 417). In the *second stage*, if the child is wheezy, some such medicine as Prescr. 47 may relieve him. If towards night, or at any time, the difficulty of breathing becomes very great and the cough strangling, an emetic dose of ipecacuanha or antimonial wine (see p. 169) will cause not only vomiting, but the expectoration of a quantity of sticky adhesive phlegm, and the immediate relief of the symptoms. The addition of one teaspoonful of oxymel of squills to either dose improves its effect. This effect might be produced every night, until the condition of distress ceases to recur. To allay the severe spasmodic character of the cough, some such medicines as are detailed in Prescrs. 48 and 49 may be useful. Two different prescriptions are given, because often when one fails the other may succeed. *In the third stage* there can be v· ' but that cod-liver oil and some mild preparation c ·ill be bene-

ficial in restoring the debilitated powers of the system, and in nourishing the often emaciated frame. This good effect is particularly marked in strumous children. No advice can be given with regard to the *complications* of hooping cough further than what is given under the various headings, where these disorders are separately described.

Mortality.—In England, in the year 1870, there were 11,901 deaths from hooping cough, of which 11,502 were of children under five years of age, and 5,088 under three years of age. The deaths of girls from the above cause in this year exceeded those of boys by nearly 1,000.

CHAPTER XXVII.

BRONCHITIS.

It is impossible, in a popular work like this, to do anything more than give a very general and superficial description of diseases of the chest. The structures affected by them are complicated and are not understood by the reader, nor can a non-medical person use the only means by which any reliable and accurate knowledge of these maladies is obtained,—I refer to the sounding of the chest and the employment of the stethoscope. Without these means the most intelligent observer will be very much in the dark: with them, to one rightly educated in their use, the progress and extent of the disease is almost as evident as if his eyes beheld it.

Nature of the Disease.—Not every case, by any means, of cough and wheezing attended by formation of phlegm, occurring in a child, is bronchitis. Fortunately a large majority of such cases are merely instances of "cold on the chest," or *bronchial catarrh;* but whether the disease takes this milder form or assumes the more serious character of genuine acute bronchitis, the structure attacked is the same, and it is attacked in the same way. The difference is not one of kind but of degree: and it often happens that the former, if neglected, runs on into the latter. The symptoms known as Bronchial Catarrh and as Bronchitis are caused, then, by congestion in the one case and inflammation in the other, of the mucous membrane lining the air-tubes of the lungs.

The lungs are two large spongy organs, which, with the heart and great blood vessels, entirely fill the cavity of the chest. They are permeated throughout by air tubes, which ultimately have communication with innumerable air cells. Just where the windpipe enters the chest, it divides into two main branches,—one to each lung,—and these divide and subdivide again and again in the substance of the lung, until the ultimate branches are very fine tubes indeed, each one communicating with and carrying air into its own little lobules of air cells, in which the important functions of respiration are chiefly carried on. Bronchial Catarrh is generally due to congestion in the *larger* tubes, whence the phlegm produced by the malady is more easily ejected, while bronchitis for the most part has its seat in the *smaller* tubes, which often become clogged and almost impervious, or in both large *and* small tubes, but in either case giving rise to a much more serious condition.

Causes.—Notwithstanding the extreme delicacy of newborn infants, this disease is very rare during the first two months of life. It is seldom met with during the first four or five months, but from thence, as age advances, it becomes more and more common during the next eighteen months, after which time its frequency diminishes, becoming more frequent again at the other end of life. The *variations of temperature and exposure to cold and damp*, which in later infancy and in childhood are such frequent exciting causes, do not so act on the youngest children. *The irritation of teething* is a very common cause of "cold on the chest" or even of bronchitis. This is especially liable to occur during the winter months; in summer, diarrhœa might be produced instead. Bronchitis is very often *a consequence* of an attack of measles or hooping cough. Lastly, it happens not rarely that *a cold* either by neglect or bad management is allowed to develop into this serious complaint.

Symptoms.—For some days the child has no worse symptoms than those of an ordinary cold. Gradually, however, instead of the cough and cold passing off, they get worse; the cough becomes more frequent, tighter and distressing, and the child cries after it; the skin becomes

hot and dry, and the breathing hurried and wheezy. If the afflicted one be an infant, it will be seen to suck hurriedly and eagerly at the breast or bottle for a few seconds, and then, stopped by the difficulty of breathing, it will throw up its head and have a fit of coughing, and afterwards begin sucking again; and so on many times following. As night comes on, the flushing of the face and the heat of the skin become more marked, the breathing more difficult, and the cough more constant, and very little sleep is gained until the early hours of morning. When the child awakes, the breathing is more than ever oppressed, for the phlegm has been accumulating in the smaller air-tubes during sleep, and until it is ejected, it painfully impedes the entrance of air. The child usually has a sharp attack of cough now, which often ends in vomiting, and when the obstructing mucus has been coughed up, the breathing is easier, and the little patient more composed. It is not to be inferred because a child does not *spit out* any expectoration, that its chest is not relieved of any. Young children do not understand how to do this; having coughed it up into the mouth, they swallow it (into the stomach), and the chest is relieved as much as if the phlegm were spit out. When the expectoration is seen, it is at first frothy mucus; then it gets viscid and clinging, and lastly becomes more free, but thick, and of a light, dirty, greenish hue. At intervals during the disease, the body will be found to be bathed in perspiration, the pulse will be uniformly rapid, and the tongue moist with only a slight white coating.

The above is a brief sketch of the milder and more common form of bronchitis. But if the disease has its seat in a large extent of the smallest air-tubes, it becomes a vastly more urgent and serious matter. In these cases the onset is often sudden, the course rapid, and the termination

fatal. A child has been suffering apparently from either an ordinary cold, or from the milder form of bronchitis, or perhaps from one of the eruptive fevers, or perchance it may have been quite well, when all at once the cough becomes constant, short, and hacking, and high fever and extreme difficulty of breathing supervene. The child's face becomes anxious, and he is heavy and depressed. If you speak to him, he either will not speak or answers hurriedly, as if he were too much engaged in getting his breath to do anything else. He is extremely restless, and will only lie in such positions as he places himself. Appetite is gone, and though at first there is great thirst, the cough and difficulty of breathing soon render drinking, in anything more than sips, impossible. The tongue is as above described, and the bowels constipated. The poor little creature is almost entirely sleepless, and all the symptoms are much aggravated towards night. There is very little expectoration, if any. The breathing becomes more and more difficult, with occasional paroxysms, when suffocation seems imminent. If a fatal termination is approaching, the face becomes livid instead of flushed, the cough less frequent and smothered in its sound, and the restlessness less extreme. A state of drowsiness and heavy torpor steals on, scarcely interrupted by an occasional cough or by struggles for breath. This stupor gradually deepens, until it merges into the sleep of death. This form of the complaint has often been known to end fatally in four, three, or even two days from its outset.

Distinctions.—These are not easy to be drawn by unprofessional persons, and since in nearly every case of the onset of the disease a doctor would be sent for, it is not incumbent on the *mother* to ascertain whether bronchitis or inflammation of the lungs is present.

It may, however, be interesting to know that these two diseases are

very frequently commingled in children, but if either occurs separately, inflammation of the lungs always gives rise early in its course to a higher temperature than bronchitis, ranging between 102° and 105° Fahr., while the latter seldom exceeds 101° or 102° Fahr. For any further points of distinction, refer to page 440. Sometimes the severe form of bronchitis, last described, *might* be mistaken for *Croup* by an inexperienced person. This error may be avoided by noting the following distinctions :—

In Croup.	In Acute Bronchitis.
1. Difficulty of breathing, in paroxysms. Respiration laboured and crowing.	1. Difficulty of breathing continuous. Respiration short, rapid, and panting.
2. Cough ringing and metallic.	2. Cough hard, dry, and hacking.
3. Voice very indistinct and husky.	3. Voice unaltered.
4. Expectoration of false membrane.	4. Expectoration scanty and viscid : very seldom that anything like false membrane is coughed up.

Prospects of the Case.—Even simple bronchitis, though usually a mild and tractable malady in itself, in the case of children under five years of age is very liable to an accident occurring during its course, known as *Collapse of the Lung;* and as this is an event nearly always fatal, a child suffering from this disease always has this possible danger threatening him. The severer form described above (and called by doctors *Capillary Bronchitis*), is always very dangerous and only too frequently fatal. Bronchitis following upon measles or hooping cough is usually dangerous, and shows a disposition to run on into inflammation of the lungs. The ultimate prospects of the case are materially improved by the complaint being recognised and treated early. The chances of a favourable issue are of course not so good in strumous or delicate children as in those who are sound and strong.

Nursing.—In simple cold on the chest, or bronchial catarrh, it is sufficient to adopt the measures recommended on page 417. In bronchitis of a severer character, the

child should be put to bed, the atmosphere of his room should be kept fresh but warm, not less than 65° nor more than 70°; only a simple milk diet (or low diet, p. 78) should be given, but he should be encouraged to drink freely of warm demulcent liquids—*e.g.*, barley-water, linseed-tea made with liquorice, decoction of marshmallow. When the cough is tight and there is wheeziness of breathing, a large mustard, or mustard-and-linseed, poultice (see pp. 187—190) should be applied to the chest or back. If sufficient relief is not thus obtained, it may be followed by a hot bath (p. 181), and this again by hot unstimulating drinks. Thus, probably, copious perspiration will be produced, and a free discharge of phlegm from the chest. But in most cases, after the application of the first mustard poultice, much good is done by continuing the employment at intervals of large linseed poultices alternately or simultaneously on the back and chest, as long as any wheezing or hardness of cough remains. If a poultice cannot be made, or if there is any objection to one, a sheet of spongiopiline soaked in very hot water, and kept hot by repeated soaking at intervals, may take its place: but the poultice is the best. Fresh attacks of great difficulty of breathing are to be met by another bath and mustard poultice, or by the rubbing of the chest, or the space between the shoulders, with some stimulating liniment (see Prescr. 46).

In case the bronchitis should proceed from the irritation of an upcoming tooth, the mouth should be examined and attended to (see pp. 253—255): there are some children who have a fresh attack of bronchitis with every tooth of the first five or six that they cut. Constipation, which often adds to the distress and hurry of breathing, may be removed by a dose of castor oil, or some mild and suitable laxative (p. 161). The inhalation of the steam of boiling water (see p. 394), or of boiling water to which half a teaspoonful of creasote

has been added, is often very beneficial in relieving the distress arising from hard hacking cough and difficult breathing. When the child is rendered damp, clammy, and uncomfortable by profuse perspiration, as is often the case, his nightgown should be taken off, his skin sponged with warm water and well dried with a soft towel, and clean warm linen be put on. Although at first the child should be put upon low diet or a milk diet, as the disease goes on, his strength will probably require to be supported by beef-tea frequently administered, and perhaps (if the doctor thinks it necessary) by wine. In those cases that are marked by great depression of strength, the mother must not be surprised at the doctor using stimulants freely. Dr. Tanner says he has seen the best effects from the administration of *two ounces* of whisky in hot water with liquorice during the twenty-four hours to children of *two years old;* but stimulants are only safe remedies while in medical hands. I would advise no mother to try such vigorous practice on her own responsibility. When the disease begins to abate, a plain and digestible but nourishing diet is necessary; and the greatest care must be taken in every way to avoid a relapse, which, without it, is only too liable to occur. Nothing will do so much to stop the cough that often lingers and wears out the child's strength, or to restore the health, as a change of air; if in summer, to the seaside, and, if in winter, to the south of France or north of Italy.

Treatment.—(See Note, p. 257.) A case of simple bronchial catarrh, or cold on the chest, often needs no medicine, but should always be watched by the attendance of a medical man, as dangers may arise at any time. An emetic at the outset of an attack usually does good; nothing relieves the chest so much, or so effectually causes the clearing of the air tubes. Ipecacuanha or mustard (see p. 169) are the best to use. The emetic may be repeated at any future period of the disease, if the breathing becomes much laboured and wheezy or rattling: or (which is in reality the same thing) [illegible] ctoration is scanty or

not ejected at all. A prescription suitable for administration (in the absence of a medical man) to many ordinary cases of bronchitis is given at Nos. 45 or 47. In severe cases of the disease, as in those following the eruptive fevers, and in others that are characterised by extreme depression of strength, dry, brownish tongue, duskiness of countenance, cold surface and an almost imperceptible pulse, another and a stimulant preparation is necessary to revive the vital powers (Prescr. 51). During recovery, some such tonic and restorative as Prescr. 52 will be useful.

Mortality.—Bronchitis comes *fourth* on the list of diseases that are most fatal to children. In England, in the year 1870, of children under five years old, 17,429 died of this disease, being considerably more than one-third of the number of deaths at all ages from the same cause. Out of the number quoted above, 14,893 died during the first two years of life, a large majority occurring during the first year.

CHAPTER XXVIII.

INFLAMMATION OF THE LUNGS.

ONLY a very broad and general outline of such a disease as this is, can be given in a work like the present. The brief and meagre description of it that I have attempted, is inserted for two reasons only; that it may be as a danger-signal to the unwary; and that the over-anxious, gaining some knowledge as to what the disease is really like, may not destroy their peace of mind by imputing it to their children when they have it not.

Medical Name.—Pneumonia.

Nature of the Disease.—The inflammation is not situated, as in bronchitis, in the lining membrane of the air tubes, but in the substance of the lung itself,—in the tissue of which the cells are formed, and that fills up all the interstices of the organ. If the inflammation proceeds unchecked, certain fluids are poured out from the blood into the part affected. These fluids soon become solid, and render that portion of the lung infiltrated by them solid also,—like a piece of flesh,—impervious to air and useless for breathing purposes. If a large portion of lung is thus spoiled, the danger of the child's perishing by suffocation is obvious. Other stages and events in the inflammation (not needful to be here described) may follow this. Pneumonia in children is very often mixed up with bronchitis also: probably the mixed form of the disease is more common, especially in infants, than the distinct.

Symptoms.—Pneumonia (for we will call it by its medical name for shortness sake) may come on either insidiously and gradually, or manifestly and suddenly. As the knowledge that the mother requires is chiefly relative to its onset, we will detail its various modes. Pneumonia

often steals on imperceptibly under cover of the symptoms of an ordinary cold: the child becomes feverish, particularly towards night, and fretful, and complains a good deal of headache. He is either restless at night or sleeps badly, talking in his sleep and waking in a fright. After a variable time, cough begins to be noticed, short and hacking, but *slight*. It may also be noticed that there is no moisture in the nostrils, nor any tears in the eyes. Appetite is lost very early, but thirst increases. The bowels are probably confined, and the little patient, especially if an infant at the breast, often vomits. The tongue and lips are of an unusually bright red, and *dry*, and the former usually has a white coating down the middle. Thus far the breathing is not very hurried or laborious, but that it *is* affected is shown by the child breathing through his open mouth as well as his nose, and by his inability to suck or drink, except in snatches. If his temperature is noted with the thermometer (p. 151) from time to time, it will be found to be above 100° Fahr., and rising steadily. The high temperature attained early in the disease is a distinctive symptom of pneumonia.

But occasionally the disease does not come on thus gradually; though its sudden accession happens much less often in infancy than in childhood. The child who perhaps has gone to bed well or only a little ailing, wakes up in the night screaming with fright (but in a suppressed kind of way) and refusing all comfort. He is flushed and in a state of burning fever, his breathing is short and hurried, and he has a short constant cough.

But in whatever way the disease may begin, the symptoms of its second stage are usually much the same. The faint traces of childish liveliness, which were occasionally evident up to this time, vanish; the little patient no longer wishes to be taken from its cradle or cot, nor likes

to be moved, nor takes the least interest in surrounding things. The breathing is now manifestly quickened and oppressed, and change of position renders it still more so. The cough, too, is more frequent and painful; it is an incessant short hacking; the child dreads it and it makes him cry. The flush of the face and the bright red of the lips fade away; while the former becomes pale and the latter dusky and rather livid, with a livid halo also round the mouth. The countenance also becomes puffy, heavy and anxious. The heat of skin remains—a dry burning heat, generally of a temperature not less than 104° Fahr.; though the body is so hot, the legs may be cold, but no moisture relieves the parched skin; or, if it does, it is a sign of the best omen, and is accompanied by abatement of the other symptoms. The thirst continues very great, and if fluids are taken in any quantity, vomiting still continues. Sometimes the child does not survive this stage of the disease, especially if it has supervened upon measles or has attacked a previously debilitated constitution. If the malady goes on into the third stage, the prospects become very bad. It is marked by breathing so quick as to be *panting;* by cessation of the cough; by hoarseness or loss of voice; the child either cannot or will not speak; the face is sunken, the feet and hands cold, and cold sweats break out, especially over the head; the child is restless and tossing, and only half conscious. The end then comes, and is seldom delayed more than two days, either by gradual sinking of the powers of life, or by convulsions followed by a stupor from which there is no waking.

Distinctions.—It will only be necessary here to notice the outward signs that distinguish between pneumonia and bronchitis; and even this is a point of mere interest rather than of practical utility, since it ought to be enough for a mother that her child is ill,—never mind what with,—to cause her to send at once for her medical man, who takes upon him-

self the responsibility of deciding the disease. The following distinguishing marks are, however, present in the majority of cases :—

Pneumonia.	Bronchitis.
Temperature always high—102° to 105°.	Temperature seldom high—101° or 102°.
Tongue and lips dry and very bright red.	Tongue and lips moist and nearly natural.
Skin usually dry and burning.	Skin often moist.
Cough dry and hard.	Cough often moist and loose.
Breathing laboured, but not often wheezy or rattling.	Breathing usually wheezy and often rattling.

Prospects of the Case.—Inflammation of the lungs is always a very dangerous disease, and in a large number of cases a fatal one. It is to be regarded as serious when it attacks infants, on account of their natural feebleness, and because in them both lungs are usually affected; when delicate or strumous children fall under it; when it follows close upon, or is coincident with, measles or scarlatina, or any febrile disease; and when the temperature rises rapidly from the first and *continues* high : 105° Fahr. is a dangerously high temperature, if it continues for any time.

Nursing.—On a disease so continually needing fresh instructions adapted to the occasion, from the doctor, very little information as to a course of management that will be generally applicable can be given. The child must wear a warm flannel nightgown, and must rest in bed from the very first, unless it be an infant. The room must be kept at a constant temperature of from 60° to 65° Fahr., well ventilated but without a draught; the light should be modified, and the utmost quietude, and an absence of all that might excite or annoy the child, must be secured. The child will probably require to be supported in bed by pillows, in a half-sitting position, or if a baby in its nurse's arms, in order to gain the posture in which breathing is easiest. Then as to Diet. During the height of the fever, the diet should be sparing

and low, but the child should take plenty of fluid—*e.g.*, barley-water and lemon-juice, toast-and-water, or soda-water and milk: milk may also be given with arrow-root or cornflour. Mutton, or veal, or chicken-broth and beef-tea, become necessary if the child is naturally weak, if the disease is producing a dry, brown tongue, and other symptoms of prostration,—when nourishment must be freely given, and when probably the doctor will order wine,—and also when the fever is subsiding and the child recovering. Under the same conditions it may become advisable to select some other nutrient articles from the diet table on page 78. If diarrhœa is present, the *décoction blanche* of the French hospitals (see Appendix A., No. 26) may be given instead of beef-tea or broth. In the early part of the disease, infants at the breast should have some food less nutritious than the breast-milk (such as barley-water) in addition to it; else in their thirst they will take too much, adding fuel to fire. If the case is a severe one, the best plan is to give even the breast-milk *with a spoon*, and thus prevent the infant from sucking; an action which is most injurious to it in any inflammatory disease of the lungs. Mustard-and-linseed poultices are useful in most cases; blisters generally do more harm than good. Some stimulating liniment rubbed into the back and chest is usually of advantage (see Prescr. 46), and its action is perfectly safe. Warm baths (see p. 179), often repeated, frequently appear to relieve all the most urgent symptoms for a time and induce sleep. The inhalation of the steam of hot water often does good, and the beneficial effect has seemed to be increased in some cases by the addition of a little oil of turpentine to the hot water. If at any time the child is suffering greatly from the presence of sticky phlegm in the chest, which he cannot dislodge, an emetic (see p. 169) will usually remove it and give him relief.

Mortality.—Out of 23,729 deaths occurring in England in 1870, considerably more than half, or 14,429, were of children under five years old. More boys died of it than girls, probably because more boys were attacked by it. The ages at which the largest number of deaths occurred were the first and second years.

CHAPTER XXIX.

RHEUMATIC FEVER.

I HAVE inserted the description of this complaint here, among Diseases of the Chest, not because it belongs to this place, but in order that I may thereby draw the attention of my readers to the *Disease of the Heart*, which is so often occasioned by its attack, and which constitutes the main element of its danger. Rheumatic fever cannot be called a common disease of *childhood*, though it often occurs even during that period; but it is a very common disease of *youth*. It is very frequently met with between the ages of seven or eight and fourteen (a period falling within the limits of this work), though it is even more frequent from the latter age up to twenty or twenty-four.

Medical Name.—Acute Rheumatism.

Nature of the Disease.—It is a peculiar form of inflammation attacking the fibrous tissues of the body, such as the muscles, and the ligaments and tendons around joints; but any other fibrous structures may be invaded by it as well, such as the white of the eye, the membranes enwrapping the brain, or (notably) the membrane enclosing the heart. The inflammation shows a tendency to rapidly shift its quarters from place to place without any ascertainable cause. The inflammatory condition is probably produced by the development in the system of an excess of acid (lactic acid); it is at any rate *attended* by a very acid state of the digestive organs, the blood and secretions generally.

Causes.—*Predisposing.*—(1) Hereditary tendency: this could be traced in 29 per cent. of Dr. Fuller's patients. (2) Youth: it is common from six years to thirty, but commonest from sixteen to twenty. (3) Sex: it is more frequent among males than females. (4) State of health: it is more likely to attack the weakly, ill-nourished or ailing, than others. *Exciting.*—(1) Cold, especially damp cold. (2) Indigestion, whereby fresh supplies of acid are poured out, gradually poisoning the system with the rheumatic poison.

Is it Infectious?—Not in the least.

General Symptoms.—A child who has been exposed (let us say) to cold and wet, is seized after a time with shivering, alternating with flushes of feverishness: he feels indefinably prostrate, and ill also; and he looks so. He complains of headache, of aching all over, and of thirst. His temperature rises, and the fever runs rather high, and may perhaps be attended at night by a little light-headedness. In a day or so one or more of the joints—the knee, perhaps, or the wrist, or both—begin to give him acute pain,—pain which often amounts to agony. If they are examined, they are found to be hot, red, swollen and intensely tender, and the young patient manifests the utmost dread lest you should touch them or move him. Meanwhile, appetite is gone, the tongue is covered with a thick creamy white fur, the breath is sour and offensive, the water is scanty and high-coloured, and on standing becomes thick and strong-smelling, and filled with a reddish-yellow deposit, which leaves a stain of the same colour on the utensil: the pulse is full and rapid, and the body is bathed from time to time in a profuse acid perspiration of unpleasant odour. This profuse perspiration is a good thing, though of course exhausting; it is one of Nature's plans for throwing out the poison from the system, and must on no account be checked.

Sleep is rendered very broken and insufficient by the constant pain, and the young sufferer generally becomes worse towards night. One or more of the large joints are generally first seized upon by the disease, but the knee and ankle that one day were so inflamed and painful, may be almost well on the next, while the shoulder and hand may, in their turn, have become the seat of the suffering. In severe cases many joints are affected at once, and continuously; while in others, the disease dodges about from joint to joint in a wearisome and aimless manner.

Occasionally the rheumatism affects the muscles between the ribs, and gives rise to symptoms that by an inexperienced observer would almost certainly be taken as evidence that the heart had become affected—or the lungs, as in pleurisy;—difficulty and pain in breathing—to wit, owing to the inflamed muscles being called into action, and pain in the side, sometimes just over the heart. This condition of things, or some modification of it, is likely to go on for a period varying from fourteen to twenty-eight days, or even longer. Gradually the disease leaves the joints, one by one, but leaves them stiff and almost useless for a time, and the young patient emaciated and very weak.

Of the Disease of the Heart occurring in Rheumatic Fever.—This affection of the heart occurs in a large proportion of all children's cases, and is to be dreaded, not only for the present danger that it brings, but for its future and permanent results. When once the heart has been affected in this way, it seldom perfectly recovers, and very often goes on from bad to worse, as time passes by; whilst the child, even under the most favourable conditions, is never as other and healthy children are.

The Nature of the Disease is inflammation of either the membrane that lines the heart, or of that which enfolds it,

and the course that the inflammation takes, usually determines whether there is immediate danger or not.

Symptoms of its Attack.—Those symptoms of this serious event in a case of rheumatic fever upon which the medical man most relies, cannot be appreciated by any but one medically instructed. His ear applied to the heart gives him as much information as to its condition as if he saw it with his eyes: not so, however, the ear of any non-professional person, listen he ever so attentively. There are not many symptoms which would forcibly attract the attention of a bystander to the mischief transpiring in the heart; and very often there are none. Perhaps the commonest and most noticeable signs of it are these: the young patient suddenly complains of a feeling of tightness or constriction of the chest, with slight pain over the heart, which sometimes extends over that side of the chest and down the left arm, hurried breathing, inability to take a long breath or to cough, occasional faintness, a peculiar look of anxiety about the face, incapability of lying on the left side, and deliriousness at night.

Prospects of the Case.—These are good or bad, according as the heart becomes affected or not. A pure, uncomplicated case of Rheumatic Fever may be tedious and exhausting, but is very seldom, indeed, fatal. Of cases in which the heart does become affected, Dr. Fuller states that one in six perish. But what is the condition of the five survivors? Only too often a very unhappy one; they can no longer enter into the games and excitement natural to their age, or practice any athletic sports with their fellows; this would be both painful and dangerous to them: even running, or walking upstairs, or any sudden emotion, is a source of distress. Henceforth the exuberance and frolicsome gaiety of youth is not for them; if they are to live at all, it must be a life of complete quiescence; they live out their often shortened term as it were on sufferance, and beset

by many perils. The condition the heart is left in, predisposes to further mischief, and to many complaints of the lungs, and seems to render a subsequent attack of Chorea (p. 356) a not unlikely event.

Nursing.—Use the Nursing Plan (see p. 203). When a child is attacked with the symptoms above detailed, it is scarcely needful to say that he must be at once put to bed: but when the acute pains in the joints and the profuse perspirations commence, he should not be allowed to be in contact with any linen.* It is cold for one thing, and might allow him to take a chill, or by its very coldness might check salutary perspiration; and for another, it gets wet through, sticky, chilly, and offensive with the excessive action of the skin. Therefore, withdraw the sheets and let him lie between *fine* and soft blankets, and wear a night-gown of fine but thick flannel.† There is no objection to a linen pillow-case. These articles will all require *frequent* changing, but with careful precautions against the patient's taking cold.

The most piteous entreaties of the child will be for ease of the pain in his tormented joints. Various remedies seem best to suit various cases, but the plan that I have found by far the most useful in practice is this. Envelop the inflamed joints in a succession of hot linseed poultices; if the pain is very intense, a good teaspoonful of carbonate of soda may be mixed up with each poultice; or if that is of no use, a teaspoonful of laudanum in each,

* Dr. Chambers, among many other medical men, has borne testimony to the value of this precaution. "Bedding in blankets reduces by a good three-fourths the risk of inflammation of the heart run by patients in rheumatic fever, diminishes the intensity of the inflammation when it does occur, and diminishes still further the danger of death from that or any other event of the disease." (Lectures, Chiefly Clinical, p. 147.)

† The child should be quite covered with the blanket, and the chest should never be uncovered or exposed to the air.—H. S.

will usually allay the pain; or both may be combined. If any interval occurs between the application of the poultices, the joint should, during that time, be thickly wrapped in flannel or cotton-wool. If the poultices do not seem to suit, use instead, at frequent intervals, hot poppy-head fomentations (and do not be afraid of using them as hot as the child can bear them), and *immediately* afterwards wrap up the painful part in a warm coating of cotton-wool or flannel. There is no limit to the frequency with which the poultices or fomentations may be used; the condition of the pain will be the best guide. When the nightgown and blankets are changed (which, if possible, they should not be whilst the skin is actively perspiring), the body may be well sponged all over with warm water, both for the sake of cleanliness and for the relief it gives to the child's feelings. But it cannot be too well remembered that in this disease the greatest care must be taken to prevent the occurrence of a chill, or check to the perspiration. Let me not be misunderstood, however; this does not mean that the child is to be loaded with bed-clothes and stifled in a close room, or surrounded by bed-curtains and overcome by a hot fire. The sick-room should be kept very quiet; a heavy tread upon the floor will make a nervous child scream, by reason of the real or imaginary jarring of the painful limb thereby caused. The young patient will require the gentlest and most delicate handling, and indeed will bear nothing else. The diet must be light and nutritious. It is seldom that the child will, or ought to, take anything but liquids or semi-liquids, until convalescence; but this is sufficient. As articles of diet, milk, or soda-water and milk in equal parts, beef-tea or broths, coffee (if the child is old enough, as he probably will be), arrowroot and milk, rice-milk, light puddings, jellies (without wine), and, in moderation, the pulp of *ripe* fruits, such as grapes, oranges, plums, peaches or nec-

tarines, &c., or baked apples. For a drink nothing is so good as lemon-juice and water, slightly sweetened or not; or what is known as "lemon kali" (which is citrate of potash and sugar) taken in water and effervescing. Cold water is allowable, and even ice. If the doctor should inform the mother that the heart has become affected, he will also probably tell her at the same time any point of nursing that he may wish attended to with regard to it. No general directions suitable to every case can be given, except these;—support the child in bed in a half-sitting posture with pillows, to relieve the breathing, and keep the room quieter than ever; let nothing take place that could by any chance cause any emotion of the mind that would quicken the beating of the diseased organ. During recovery great care is necessary in the matters of diet and exposure to cold. As appetite returns, the child will be almost sure to ask for many things that he ought not to have, and unless watched, will eat too heartily of what is given him. Red meat should be strictly avoided. An error in quality or quantity of food in the weakened state of the stomach, would produce an attack of indigestion that might be sufficient to occasion a serious relapse. Great care is also requisite for some time after the illness, in protecting every part of the body from cold. If the heart has been affected, additional circumspection will be necessary to prevent the child from moving about in any but the gentlest and most leisurely manner for some time after the illness has passed away. A child who is thus affected, will *always* require to be defended from all causes of excitement and emotion, and to be restrained from hurry and from all but the gentlest exercise.

Treatment.—(See Note on p. 257). If the services of a doctor cannot be obtained, it will be necessary to cause a full evacuation of the bowels at the outset of the disease (Prescr. 41), and to maintain

their subsequent action once a day. If perspiration is not free, a few doses of sweet spirit of nitre may be given to promote it, and perhaps a hot bath, or a hot-air bath may also be used (with due precautions against cold) with benefit. For the rest, all that can be done (except by a doctor) is to endeavour to neutralise the acid poison of the disease by alkalies; for which purpose Prescr. 17 may be constantly given, until the symptoms have fairly yielded. During recovery, quinine will be useful to restore tone a... he system (like Prescr. 21).

CHAPTER XXX.

caused by *improper* food, even if not excessive in quantity, and under this head may be classed too early or too sudden weaning, involving the giving of food for which the digestion of the child is not prepared. (3) Debility of the system generally, which includes debility of the digestive organs, so that even very simple food, and in very moderate quantities, cannot be assimilated. (4) The disorder may, moreover, be caused by *sympathy* of the stomach with other organs, and with morbid conditions of the system, as in inflammatory diseases of the brain, lungs, &c., in eruptive fevers, in fever generally, and in teething.

Symptoms.—These vary very much according to the

CHAPTER XXX.

INDIGESTION.

THIS is not a very common disorder of *childhood;* healthy children of between six and fourteen years of age appear to be mercifully enabled to digest almost anything, certainly much more readily than their seniors; but there is, on the other hand, probably no complaint of infancy or early life, which is a more common source of distress to the child itself, or of anxiety and care to the mother. Where is the thrice-lucky infant to be found who is a stranger to the pains of "wind," to vomiting, or disordered bowels? for all of these are merely incidents of indigestion.

Medical Name.—Dyspepsia.

Causes.—(1) Undue fulness of the stomach; the fact of the infant or child having taken at one time more milk or food than the organ can deal with. (2) The irritation caused by *improper* food, even if not excessive in quantity; and under this head may be classed too early or too sudden weaning, involving the giving of food for which the digestion of the child is not prepared. (3) Debility of the system generally, which includes debility of the digestive organs, so that even very simple food, and in very moderate quantities, cannot be assimilated. (4) The disorder may, moreover, be caused by *sympathy* of the stomach with other organs, and with morbid conditions of the system, as in inflammatory diseases of the brain, lungs, &c., in eruptive fevers, in fever generally, and in teething.

Symptoms.—These vary very much according to the

causes producing them. (1) Sometimes young infants are seized with sudden and often-repeated vomiting, though otherwise apparently well. They nevertheless still crave for the breast or the bottle, but every time they take either they throw up the milk at once and unchanged, or in a few minutes and curdled; and this happens every time they take any. In the healthy child of a healthy mother, this will usually be found to occur after some imprudence on the part of the latter, or of the nurse. The mother may have left her baby for longer than usual, and coming in tired, may have nursed it there and then rather abundantly; or the baby may have been awoke suddenly or before its usual time, or it may have been exposed to the too direct rays of the sun. (2) Sickness does not, however, always occur as the *only* symptom of indigestion. In the majority of cases in those who are past infancy, and in many who are still infants, other symptoms are associated with it. In some cases there is a distaste for all food, or frequent refusal of the breast or bottle; the child takes food, or sucks, but seldom, and then very sparingly, and a portion of even the little that *is* taken is often thrown up again. (3) In other cases there is a perpetual craving for food or the breast that no amount of indulgence seems to satisfy; but pain and crying follow every time of feeding; the stomach cannot digest its contents, and the child obtains no relief until he has vomited the offending food, when he seems easy again, and straightway manifests a desire for more; which, if allowed, necessitates the repetition of the whole process. If the food has been milk, it will be vomited in large pieces of firm curd. (4) In yet other cases, none of the before-mentioned symptoms are prominent; but the child is the subject of constant offensive eructations (or belching up of wind), its breath has a sour smell and its bowels are constipated, the motions being most fœtid in odour.

Constipation is frequently present in indigestion, but there are other characters of the motions that are symptomatic of it. (*a*) If the infant has been wholly nursed, they may be liquid, pale yellow, containing shreddy curds, and horribly offensive; (*b*) if farinaceous foods have been prematurely given—*i.e.*, before the child could digest them—the motions will often look like putty or dirty pipe-clay, smeared over with gelatinous mucus (*slime*, as nurses call it) from the bowels; (*c*) diarrhœa is very frequently a symptom of indigestion; (*d*) the motions may be green, slightly loose and very offensive; this state of them is nearly always indicative of acidity.

Flatulence (or "*the wind*") is, perhaps, the commonest concomitant of indigestion in infants, or even in others. It is caused by gases given off from the acid secretions of the stomach and bowels and from the undigested decomposing food itself, which, by distending those organs, are the source of great pain, rendered only too evident by the loud and distressing cries of the suffering baby. In indigestion the belly is often hard and distended, the tongue coated, white or dirty looking, and the water high coloured, strong smelling, and very irritating to the child's skin. If indigestion is allowed to go on for any length of time, the child soon loses the colour and brightness of health; he becomes listless and irritable, he sleeps badly, and gradually loses flesh and strength, and gets into a state in which he is most liable to become the ready victim of almost any other disease of infancy or childhood.

Distinctions. — Vomiting, though a very common symptom of indigestion, is also constant in other diseases. Vomiting that occurs at the outset of any of the eruptive fevers will be accompanied by symptoms peculiar to the fever approaching. If it is connected with inflammation of some important organ, it will also be attended by great

disturbance of the constitution generally—manifest *illness*. In vomiting from the disease mentioned on page 333, food is no sooner swallowed than it is thrown up, and there is often retching when no food has been swallowed; there will also be fever and the other characteristic symptoms adverted to on the page above quoted. The vomiting of indigestion seldom happens *immediately* on food being swallowed; there is nearly always *some* delay.

Management.—There are certain points that should be observed in every case of indigestion, and there are others that are only applicable to those cases respectively, for which they are suited. To avoid needless recapitulation, I must ask the mother of every child suffering from indigestion, who consults these pages, carefully to read the chapter on Diet, wherein she will find much information that has a direct practical bearing on the subject in hand. Some error in diet is the origin of this malady in seven cases out of ten; it may be an error either in quality or in quantity. It is obvious that if a child's stomach is too weak to digest a certain amount of milk or any other food, the thing to do is to give it less; and, if necessary, *to go on* decreasing the quantity given at one time, though the frequency may be rather increased, until an amount is reached which the child does *not* vomit and *can* deal with.

If the quality of the food is at fault, there are many points to be looked to and several plans to be tried, from amongst which, the skill of the medical man or the sense of the mother will select the one seemingly most appropriate to the case in hand. The malady of the nursling may be the result of indigestion, imprudence in diet, bad management in nursing or general ill-health, on the part of the mother; in which latter case this must be corrected or the baby must be weaned. It may be the result of using imperfectly cleaned and sour bottles. It may be from using milk which

is just turning, or cow's milk insufficiently diluted with water and too heavy for the delicate stomach. If further dilution does not rectify this latter evil, the child had better be put altogether upon asses' milk, or upon merely the *whey* of cow's milk for a day or two, after which time a return to weak milk-and-water may be attempted. Over carefulness of an infant by keeping it always in close, hot, and unventilated rooms is a frequent source of indigestion, and must be avoided. In the case of children who have arrived at the age when they need, and are taking, a partly farinaceous diet, a change from the article of food in question to some other, will often suffice to remove the symptoms of indigestion. Children should not be allowed to take violent exercise immediately after meals, or digestion will be much impeded. The management of a case such as is described in the paragraph on *Symptoms* (under heading 1) is as follows. The infant must be taken from the breast, and for two hours *nothing* of any kind must be given to it. Then a spoonful of cold water may be given, and if this is retained, one or two more during the next half hour. If vomiting does not return, a little cold barley-water may be administered, a teaspoonful at a time, but frequently; and in ten hours, if no sickness has occurred, the mother's milk or a little cow's milk and water may be given in the same way; if no ill result follows this, the baby may be restored to the breast in twelve hours more, care being taken, however, to let it suck but very little at a time, or vomiting will again be excited. Sometimes vomiting is so obstinate as to require the application of a mustard-and-linseed poultice to the stomach to allay it. The position of the stomach is in the upper part of the abdomen, in the middle line, and on the left side of it, and partly covered by the left ribs. Change of air is always useful in cases of indigestion, and often succeeds when everything else has failed.

Treatment.—(See Note on p. 257.) In the majority of cases of infantile indigestion, attended with "wind," pain, and consequent screaming, green and offensive motions, and curdy vomiting, alkalies (such as carbonate of soda, bicarbonate of potash, or lime-water), together with a drop or two of sal volatile, are useful (see Prescr. 53). The dose of carbonate of soda for a child of from three to six months old is about three grains three times a day. In cases characterised by loss of appetite, tonics will generally be beneficial (see Prescr. 54). Cases such as are described in the paragraph on *Symptoms* (under heading 4) are frequently relieved by pepsine wine (Morson's), given in doses of ten or fifteen minims, *at times of feeding*, three or four times a day. The pepsine simply acts as a digester or solvent of the food, just as the gastric juice of the infant (which is deficient) would do. In addition to the pepsine wine, Prescr. 55 is also of service in these same cases. The condition of the bowels described—at (*a*)—in the paragraph on *Symptoms* is usually relieved by a spare diet, and by small doses of Epsom salts and of tincture of rhubarb (five grains of the former and ten minims of the latter in some peppermint water three times a day, for a child one year old). The condition (*b*) requires that the unsuitable article or articles of diet be at once left off; if this alone does not effect a cure, it may become necessary to give two grains of "grey powder" with three of powdered rhubarb, and one or two grains of bicarbonate of soda, night and morning (to an infant) for a day or two The condition (*c*) will be spoken of in the chapter on Diarrhœa; (*d*) has been adverted to above. Constipation will be treated of in the following section.

CHAPTER XXXI.

SECTION I.—CONSTIPATION.

THIS is a *symptom* rather than a *disease*, but it often carries other symptoms in its train, such as flatulence, colic, a furred tongue, restlessness and irritability, loss of appetite, and sometimes even emaciation. Constipation may occur both in infancy and childhood, at either of which periods it may be occasional or habitual; it is not common, however, at either time, and the younger the child the less likely is he to suffer from it.

In Infancy.—A baby may be said to be constipated when it has less than two motions a day, or when its evacuations are difficult and painful of expulsion, as well as infrequent. It is nearly always the result either of improper diet, of indigestion, or of both. Some infants become confined in their bowels if they are fed on boiled milk; others if they take sago boiled in beef-tea. The common, but pernicious practice of feeding young babies (under seven or eight months old) with farinaceous and starchy "foods," which they cannot possibly digest, and never were meant to do, is a most fertile source of constipation,—and occasionally of its opposite, diarrhœa.

In these cases, the former is thus produced. The presence in the bowel of acrid masses of undigested starchy food, gives rise to such irritation of the mucous membrane lining it, that it secretes a quantity of viscid mucus ("slime"); the compact putty-like mass becomes so smeared over and enveloped with this mucus, that the contracting bowel cannot grasp it (as it were), but slips over it, and fails to move it onwards towards the outlet.

Motions of this character are usually only evacuated with painful straining, and are often found to be streaked with blood. A sluggish action of the liver will produce constipation by diminishing the secretion of bile, which acts as a natural laxative. Lastly,—and it is rare in infants,—the cause of the ailment may be constitutional torpor of the bowels, a state which, if overcome for a time by remedies, at once recurs when the remedies are discontinued. In the management of infantile constipation, it should be borne in mind (a fact about equally true of any period of life), that the less medicine that is given the better. If the infant is suckling, it may usually be reached through the mother; let her take a saline aperient, such as a Seidlitz Powder, cream of tartar, or salts; or it may be sufficient, and certainly more agreeable, for her merely to increase the quantity of fresh vegetables taken in her diet, and her milk will become laxative to the child. If the infant is being fed, alteration of its diet, as recommended on page 59, will usually have to be effected. If it should ultimately become necessary to have recourse to medicine, some such mild laxative as manna (p. 161) may be used, or failing this, a dose of castor oil (half a teaspoonful for a child under three months, a whole teaspoonful for a baby above that age). It is very seldom that any stronger remedy is necessary. A little plug of soap, cone shaped (see p. 165), inserted into the anus (or fundament), or the use of the aloes and soap liniment (Prescr. 2), rubbed into the surface of the abdomen, will often excite the bowels to daily action.

In cases of torpidity of the liver evidenced by unnatural whiteness of the evacuation, if no doctor is at hand to prescribe, it may be useful to give a little rhubarb and grey powder (in the dose mentioned on page 456) two or three times each night and morning. A large linseed meal poultice applied over the liver, sometimes seems to answer almost as well.

In Childhood.—Constipation may occur in children, as in infants, from errors of diet, either of quantity or quality. It occasionally is the result of indigestion. It is originated also by keeping children in hot and close rooms, by insufficient attention to ablution and the action of their skin, and by want of exercise. It very often arises merely from the fact that the child has not been taught to form *the habit* of occasioning the bowels to act at a stated time, or times, each day. Occasionally we find an instance of what may be termed a family predisposition to the ailment; all the other members of the family probably suffer from it, but apparently without detriment to their general health, nor do any remedies, natural or medicinal, seem to do them any lasting good. When a mother is *sure* that she has an instance of this condition in her child, she had better not be too busy in attempting to remove it; her remedies will do more harm than the irregularity they seek to overcome. Natural remedies, if I may so call them, should always be tried first. The best of these are, plenty of fresh air and exercise, early rising, cold bathing, or a shower bath (if the child can bear it), a drink of cold water on first getting up, teaching the child as early as may be to form the habit mentioned above, and the employment of laxative articles of diet. Amongst the latter may be named oatmeal, good gingerbread, bran biscuits, brown bread, treacle, baked apples, fresh ripe fruit, and green vegetables (cooked). Most mothers consider the superintendence of the condition of their children's bowels as one of their maternal rights and duties, but if constipation is obstinate, there is probably a cause they know not of, and their wisest course is then to ask the assistance of their medical man, instead of trying one painful drug after another, to their child's unhappiness and torment. If, however, the ailment is slight and easily gives way, or if no medical advice *can* be had, no harm is

done by having recourse to some simple laxative. It will be only necessary for me, here, to refer my readers to the information and advice given on pp. 160—165 on Purgative Medicines, and other means of stimulating the action of the bowels.

If a child is constipated merely because he cannot digest his food,—a condition in which he will usually complain of pain and weight at the chest after eating, flatulence, and colic,—it follows, that if he is enabled to do so, his bowels will again act properly. This may be done in many cases by giving him half a teaspoonful (or a whole one if he is more than seven or eight years old) of Morson's pepsine wine *with* each of his principal meals, until the discomfort after eating has vanished.

Section II —Diarrhœa.

This is, without doubt, one of the most common and of the most serious and important diseases of infancy.

Varieties.—There are many forms of it, but they are all closely allied to one another. The two chief varieties are simple or *catarrhal* diarrhœa, and inflammatory diarrhœa or dysentery. Other kinds are sometimes spoken of under the names of bilious, mucous, and chronic diarrhœa.

Causes.—These are so numerous as to be difficult to enumerate; the principal are as follows:—(1) *Age:* an immense majority of all cases occur between the ages of six months and two years. This period will be seen to correspond exactly with the time of the first *teething*, and also with that in which all the digestive organs are undergoing that active change and development that will fit them for the digestion of more complicated food; a time when, without doubt, they are extremely sensitive. (2) The influence of *Teething* is very great; the bowels sympathise with the irritation of the mouth. M. Bouchut found, from statistics collected in the Necker Hospital in Paris, that out of 138 children suffering from their first teething, *only* 26

were quite unaffected by diarrhœa.* It is a fact familiar to most mothers and to all medical men, that there are many infants who cut several teeth in succession with an attack of diarrhœa. (3) *Atmospheric Conditions:* the complaint is greatly more prevalent in hot and close weather than in any other. The months in which it is commonest are those of late summer and of autumn. Eight years' records of the Children's Hospital in London showed that in August, September, and October, a quarter of all cases of illness of every kind were cases of diarrhœa. (4) *Errors of Diet:* this is the most frequent cause of any, but it embraces errors of so many kinds that space will not allow me to recapitulate them here. (See chapter on Diet.) (5) *Bad conditions of Life:* such as impure air and overcrowding,† exposure to damp, cold, bad drainage, insufficient clothing, uncleanliness, defective light. (6) *Temperament and health of the Nurse:* if the digestion or health of the nurse is deranged, or if her temperament is nervous or excitable, her nursling will suffer from diarrhœa. (7) *Constitution of the Child*: some children appear to have an inbred tendency to slight diarrhœa (just as in the former section I observed that some had to constipation), which seems to do them no particular harm, and is difficult, if not impossible, to cure. (8) Worms are an occasional cause.

Symptoms. — I. *Of Simple Diarrhœa.* The attack usually begins with vomiting, first the contents of the stomach; then, perhaps, some greenish or yellow mucus. Then purgation commences; the evacuations are at first healthy,

* "Maladies des Nouveaux-Nés." 2nd ed. p. 530. Paris.

† In an institution for the reception of single women with their infants, Dr. Eustace Smith noticed "that whenever the occupants of the infants' sleeping nursery reached a certain number, one or two deaths were certain to occur from bowel complaints, and this in spite of all possible precautions in the way of ventilation." ("The Wasting Diseases of Children," p. 58. London.)

but very shortly they assume a bright yellow and a slimy or frothy appearance. The bright yellow colour is often turned to green by exposure to the air or by admixture with the urine. If the diarrhœa continues, the motions are then frequently thin and green (like chopped spinach and water) when voided, and are *shot* out with great suddenness and force, betokening a very irritable condition of the bowels. In other cases the evacuations contain numerous shreds and specks of curd, showing that the stomach is deranged as well as the bowels. Simple diarrhœa, when not co-existent with teething or any other disease, is not, as a rule, attended by fever or much constitutional disturbance, though nearly always by more or less colicky and griping pain, as is evident from the screams of the suffering infant. The appetite is bad, but the child is thirsty. It is surprising in how short a time a child may be brought into a state of exhaustion, and even emaciation by this malady; and in young infants, if it is of long continuance, brain symptoms, often including convulsions, usually set in from sheer prostration of strength.

A word of caution may be noted here. These brain symptoms, to an unprofessional observer, closely resemble the symptoms of acute inflammation of the brain (p. 333), but in reality they differ widely, and are of *a far less* desperate character. It is very seldom, indeed, that a mother, whose child becomes the subject of these symptoms after an exhausting attack of diarrhœa, need labour under the fearful alarm that it has inflammation of the brain; though in any case its condition is very serious.

II. *Of Inflammatory Diarrhœa.* This sometimes seems to arise from neglect of a simply relaxed condition of the bowels, but often arises suddenly and without warning. In this form of diarrhœa, as in the other, the attack usually sets in with vomiting, which, however, is in most cases persistent, and often so severe that every drop of liquid swallowed is instantly rejected. Violent purging occurs

at the same time, and it is not uncommon for a child to have twenty or thirty motions in the twenty-four hours. The evacuations very soon become unnatural, they are watery, slimy, or tinged with blood. They are also, at first, very copious and expelled with violence, but after a time the amount of each motion decreases. In, perhaps, the worst cases, nothing but dirty-greenish water is passed from the bowel, without either blood or slime. The general health is very greatly affected in this form of the complaint. The child is feverish and heavy, fretful and not bearing to be disturbed, drowsy, yet with eyes half open. The skin is hot and dry, the thirst and constant craving for cold water is intense, even in cases where every drop taken is at once vomited; the belly is rather distended; attacks of more or less severe pain seem to precede each motion; the tongue is at first moist, but afterwards red and dry, and throughout the malady a condition of stupor often seems to alternate with one of excitement. The brain symptoms spoken of as liable to supervene on a severe case of simple diarrhœa, are even more likely to come on during an attack of this form of the complaint. There is, probably, no disease that will so rapidly reduce a child in flesh and strength as this; the prostration induced is such that death may, and often does, take place within even a few hours of its onset. Such cases, however, are the exceptions rather than the rule. In the majority of cases in England, judicious nursing and medical skill bring about an abatement of the severity of the symptoms within forty-eight hours; nevertheless very many fatal cases remain. Convalescence is irregular and slow, and very liable to relapses. In some cases the diarrhœa becomes chronic and ends fatally after all.

Prospects of the Case.—It is but seldom that simple diarrhœa is fatal; inflammatory diarrhœa very often is. Diarrhœa is more favourable when it occurs in winter or

spring, and when it is uncomplicated by teething or any other disorder; and also when the vomiting is easily subdued. The occurrence of brain symptoms is very unfavourable, though not hopeless. The appearance of dirty green-water stools (above mentioned) is also very bad. The yellowish diarrhœa, or the yellow diarrhœa becoming green on exposure, are not serious; the yellowish-green motions containing shreds of curd are often of bad omen. In babies who have been wrongly fed, or weaned too soon, we often find the diarrhœa from which they have long been suffering stop altogether for some hours before death; therefore a child who has been attacked severely cannot be considered as out of danger till improvement has been steadily going on for at least twenty-four hours.

Prevention.—It is a far better thing for mothers and those in charge of children to study the *Prevention* than the cure of diarrhœa. Generally speaking, it could be easily *avoided;* it cannot always be easily *cured*, as the paragraph below on the mortality from it amply shows. Therefore I have attempted (on p. 460) to enumerate the most fruitful causes of the complaint, in order that, being known, they may be, as far as possible, precluded. A large majority of the cases of diarrhœa among infants and children that one meets with in private practice, arise from a faulty or mismanaged dietary. Advice on dieting at the different periods of infancy and childhood, on ventilation and clothing, and other kindred subjects connected with the prevention of this malady, will be found in the first four chapters of the book.

General Management.—This is of a good deal of importance, as there can be no sort of doubt that a large proportion of cases of *simple* diarrhœa will recover without medicine, if they have judicious management. No mother, however, should take upon herself to decide whether her child wants medicine or not; she ought to call in her

medical man and then nurse the child according to his directions. In case medical advice cannot readily be obtained, I offer the following suggestions.

The first thing to be looked to is the diet.

There is a prevalent belief among those unlearned in disease, that because diarrhœa is a weakening malady attended by a great drain upon the system, it ought to be met by a large amount of strong nourishment "to support the child's strength." There is both truth and error in this; the child's strength must be supported as far as possible, but it must be remembered that if we pour food into a stomach, that from the very nature of the disease will digest next to nothing, and allow the undigested food to pass through bowels already in a high state of irritation, we only make matters much worse instead of better. If there is constant sickness, and if the little patient be an infant, it must be withdrawn from the breast or debarred from the bottle for a time, and only a little barley water must be given, one or two teaspoonsful at a time, until the irritability of the stomach is subdued; if the child be past infancy, all solid food must be stopped and only thin arrow-root and milk, or ground rice boiled in milk, should be given.* If the vomiting is severe and difficult to check,

* In cases where there is persistent diarrhœa, accompanied by continuous vomiting, it is useless to feed by the mouth, or even by the bowel. The best way then is to stop both; give a hot bath, and when the child's skin is dried, *feed by the skin* by rubbing in cod liver oil. It is surprising how much oil can be absorbed in this way. It should be carefully and slowly rubbed into the child's belly and chest until it is dry. I well remember the case of an infant two weeks old thus affected, and so emaciated that it looked, with its toothless jaws, exactly like an old man of eighty. I stopped the internal administration of everything, and ordered cod liver oil to be rubbed into the poor little thing every three or four hours. The diarrhœa and sickness ceased, and the child received so much nourishment by the skin only, that it became quite plump.—H. S.

little pieces of ice, or small quantities of iced milk, or iced soda-water and milk will usually allay it, and may be given without fear even to an infant. If sickness should still continue, apply a mustard-and-linseed poultice (in the case of an infant), or a mustard poultice (in the case of a child over four years old), over the stomach for a few minutes. When the infant is restored to the breast or the bottle, or the child to more solid food, the amount taken at one time must be very small, but it may be taken frequently. In the case of the child, the food, though of the simplest character, must not be too exclusively fluid. Rusks or toast soaked in weak beef-tea or broth, a little boiled white fish or chicken, plain rice and milk puddings, oswego, arrowroot and milk, the decoction blanche (Appendix A., 26), or baked flour with boiled cow's milk from which the scum has been removed, are amongst the articles that may be allowed according to the child's age and their suitability to his digestion. The return to the ordinary diet after the cessation of diarrhœa should be very gradual and cautious.

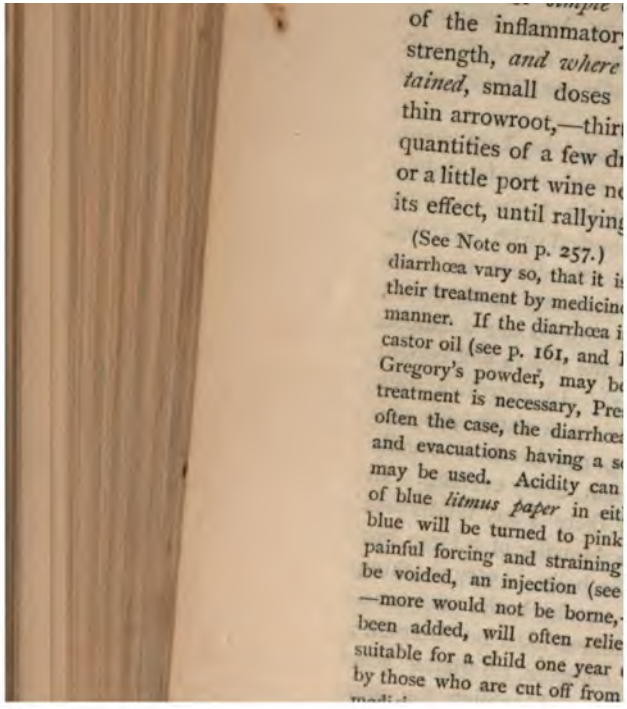
In some cases of inflammatory diarrhœa, the irritability of the stomach and bowels is such that almost any food, however simple, seems to aggravate the malady; meanwhile the child is sinking from exhaustion. In this alarming condition we possess one remedy which, though rather strange and startling in its character, is of inestimable value. I refer to raw meat or raw meat juice,* which is tolerated and digested when nothing else is. Singularly, and fortunately also, there is seldom any difficulty in getting children in this condition to take it,—nay, they crave for it and cry for more.

* This has been in use since it was first recommended by Professor Wiesse, of St. Petersburgh (Journal fur Kinderkrankheiten, vol. iv., 1845, p. 99), and its value has been attested by almost every physician who has had large opportunities of observing the diseases of children. For mode of preparation, see Appendix A, Nos. 18 and 19.

The quantity for a child a year old is about one ounce in the twenty-four hours, given a very little at a time. If it is not taken readily, it may be sweetened with a little powdered loaf sugar or may be given in a little weak veal broth. During its use no other food should be given, and the only drink should be thin barley water. The raw meat treatment causes the motions to be horribly offensive. *If it be possible this plan should only be pursued under the surveillance of a medical man.*

Children suffering from diarrhœa should be kept warm and at one temperature (60°—65°); and infants should wear a broad flannel bandage round the belly, covering *the whole* of it. In diarrhœa connected with teething, it is useless to expect the doctor in attendance to lance the gums, unless a tooth is really pressing upon them; if this is not the case, it is mere cruelty to use a lancet. Whatever will relieve the condition of the mouth will benefit the diarrhœa (see Teething, p. 253). In diarrhœa from this cause, or in the inflammatory variety, a warm bath containing a quart of hot decoction of poppy heads is usually of good service, or a simple warm bath, every evening. In inflammatory diarrhœa, especially if there is any tenderness of the stomach, the application occasionally of a large hot linseed or bran poultice, covering the belly, is very soothing to the irritable bowels, and tends to check the diarrhœa. In this complaint the utmost cleanliness must be observed: a soiled napkin should *at once* be changed, no matter how often the change is requisite; after each motion the skin should be sponged with warm water, gently dried and then well powdered with violet powder, or better still, with oxide of zinc.

In many cases of inflammatory diarrhœa, the child is brought to such a degree of prostration that the question arises "Ought he not to have stimulants?" It is a



of the inflammator
strength, *and where*
tained, small doses
thin arrowroot,—thir
quantities of a few d
or a little port wine n
its effect, until rallyin

(See Note on p. 257.)

diarrhœa vary so, that it i
their treatment by medicin
manner. If the diarrhœa i
castor oil (see p. 161, and
Gregory's powder, may b
treatment is necessary, Pre
often the case, the diarrhœ
and evacuations having a s
may be used. Acidity can
of blue *litmus paper* in eit
blue will be turned to pink
painful forcing and straining
be voided, an injection (see
—more would not be borne,
been added, will often relie
suitable for a child one year
by those who are cut off from

of the bowel often remains. For this, use the injection just mentioned above. If the case is severe and does not yield to these measures, a little grey powder (one and a half grain three times a day for a child a year old) may be necessary, together with Prescr. 57. When the acuteness and severity of the symptoms have passed off, the bowels often still continue loose ; this may be checked by Prescr. 20 *b*.

Mortality.—In the year 1870, in England only, 21,415 deaths from diarrhœa occurred in children under five years of age ; of these 16,709 were during the first year of life. More boys died than girls. Thus diarrhœa takes the second place in the list of largely fatal diseases of children, convulsions holding the first. These figures must not mislead us, however, with regard to the fatality of diarrhœa : a vastly larger number of children suffer from this complaint than from any other, and no mention is made of the great majority of cases which *recover*.

CHAPTER XXXII.

DECLINE.

THE name which is placed at the head of this chapter is, I am aware, of a vague and dubious signification, but I have used it here for want of a better, to describe a rather common diseased condition of childhood. Consumption of the lungs is often called Decline, but the term is used now to allude to Consumption of the Bowels, a more common and an equally serious disease of early life.

Medical Names. — There are two diseases closely allied to one another and with but a very imperfect line of distinction between them, that may be described, in a popular work like this, as giving rise, singly or both together, to the collection of symptoms here called Decline. The one is Tubercular Peritonitis (or *tubercular* inflammation of the bowels), and the other is known to doctors as Tabes Mesenterica (or the *wasting mesenteric disease*). It would be impossible for an unprofessional person to distinguish between the two, nor is it of any great importance that such distinction should be made.

Nature of the Disease. — Tubercular matter (see p. 325) is first of all deposited either in the numerous glands occurring in the mucous membrane lining the bowels, —which gives rise to a low and sluggish inflammation, and subsequently to ulceration — or it is deposited in glands external to the bowels (the mesenteric glands), which are thereby enlarged and inflamed, and are usually caused ultimately to ulcerate. The glands, spoiled by disease, will no longer fulfil their function of elaborating

and absorbing nourishment, and hence arises the distressing wasting that is characteristic of the disease. The supplies are cut off at the fountain-head.

Causes.—This is one of the large and deadly tribe of tubercular diseases. The whole system is infected with the tubercular poison (see p. 325), but its destructive effects are concentrated upon the glands of the bowels. Whatever fosters or engenders the tubercular condition of the system will tend to increase the chances of this disease being developed (see p. 326). Whatever causes would tend to irritate or derange the bowels in a tubercular child, would also predispose him to fall under this disease; amongst such causes are improper feeding, difficult teething, and exposure to cold and damp. The liability to suffer from this malady seems to last from the eighth month to about the eighth year, but a larger number of cases by far occurs in the first year than in any other.

Symptoms.—The first thing that is noticed is the manifestly failing health of the child, the appetite becomes capricious, sometimes ravenous, sometimes loathing food; he loses in energy and liveliness and he *looks* ill. Then more or less continuous pain in the bowels is complained of, which often causes him to draw up his legs towards the stomach. The bowels are sometimes constipated, sometimes relaxed, but more often the latter; and the motions may be either dark or of a light clay colour and are extremely offensive. The belly is usually distended, and tight and hard like a drum; and the veins are seen through the skin to be enlarged and unusually full. The child sleeps badly at night and becomes feverish; his temperature, as ascertained by the thermometer (see p. 151), is found to be unnaturally high. Later on, obstinate and exhausting diarrhœa sets in, and the child becomes miserably emaciated, his attenuated limbs, his pinched and anxious

features and his immense abdomen rendering him a painful object for commiseration. The burning flush of hectic fever often gives him a transient and delusive appearance of improvement, leaving him, however, only more pallid when it subsides. Occasional remissions in the symptoms only too often revive unfounded hopes that all may yet go well with him; but, unfortunately, in the majority of cases the little sufferer passes from bad to worse and ultimately sinks from simple exhaustion and starvation, from inability to assimilate and profit by the food he takes; or he is attacked by acute and fatal inflammation; or perchance he is carried off by tubercular disease arising in the lungs or the brain, or elsewhere. When the child does recover, his recovery is very slow, and it is only by the utmost care and watchfulness that relapses are avoided, and he is guided once more into a condition of comparative health.

Prospects of the Case.—It will readily be gathered from the foregoing remarks, that these are always bad. Children *do* sometimes recover, but even then they are still the subjects of the morbid constitutional condition (I refer to the predisposition to tubercular disease) that originated the disease, and that may yet manifest itself in some other form and lay them low. The cure of a malady is always difficult, when there is only a diseased constitution to work upon.

Remedial Measures.—The diet must be as mild and unstimulating as possible, and though it is essential to support the strength as far as may be, it must be by the quality rather than the quantity of food that this will be done: to load organs with large quantities of nourishment, that can scarcely deal with any at all, is merely to add to the mischief. Asses' milk and farinaceous foods with milk are generally useful, and animal broths well made and free from salt may be given to children who are old enough to take

them. Very little food of any kind should be given at one time, even when the appetite is most ravenous. The pain in the bowels is best relieved by large warm linseed poultices, to each of which may be added fifteen or twenty drops of laudanum. Tepid sponging may be employed to mitigate the fever. Change of air to the seaside may do good, if adopted *early* in the complaint.

(See Note, p. 257.) Cod liver oil is always useful (see p. 321 and Prescr. 24), if the stomach will bear it and if diarrhœa is not present, nor originated by it. As much of it should be given as the child can bear. The syrup of iodide of iron (see p. 175) is another remedy that is perhaps as useful as any other, given three times a day in a little water. The diarrhœa is nearly always difficult to control; prescr. 56 may be tried.

Mortality.—During the year 1870, there were 6508 deaths in England from this disease, in children under fifteen years of age; of this number 3407, or more than half, were in their first year. The above figures are probably below the truth, many deaths in obscure cases of the disease having been registered as from other complaints.

CHAPTER XXXIII.

WORMS.

ALL worms wherewith children are afflicted are not alik
In this country we find chiefly four varieties.

(1) The short thread worm (*Oxyuris Vermicularis*).
(2) The long thread worm (*Trichocephalus dispar*).
(3) The long round worm (*Ascaris lumbricoides*).
(4) The common tape worm (*Tænia Solium*).

These different kinds of worms not only give rise
classes of symptoms differing somewhat from each othe
but also require different treatment.

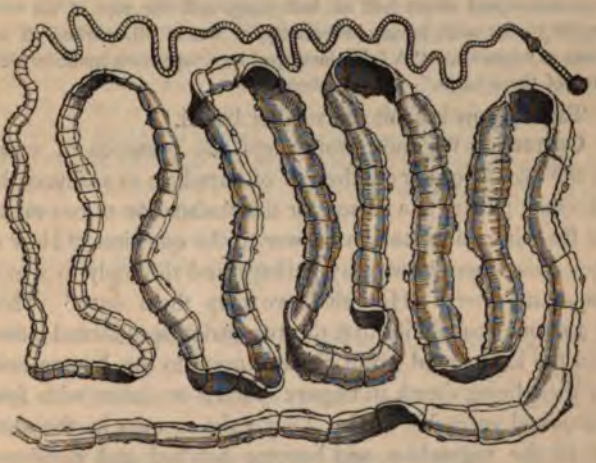
Description of each variety of Worm.—*The Sho*
Thread Worm varies from one-sixth to half an inch
length, the males having the smaller and the females th
larger measurement. These are more like maggots tha
worms,—like bits of whitish thread,—and occur usuall
in immense numbers. They inhabit the lower end of th
bowel (or rectum), and among children are the commones
variety of the four. When voided, they are generally see
to be very lively, moving their head end about very briskly
They are sometimes passed agglomerated into masses b
mucus, and coloured with the natural contents of the bowel

The Long Thread Worm is not very common in England
but is often found to occur in the motions after typhoi
fever. The male is an inch and a half, the female two
inches long. The worm is smooth, and about two-thirds o
it is thread-like and thinner than the remaining third. I
inhabits the upper end of the larger bowel.

The Long Round Worm, if a male, is from four to six
inches long, if a female, from ten to fourteen: the female is
about a quarter of an inch broad. It tapers off gradually
at each end, and has a smooth body of yellowish white hue.
These worms dwell in the small bowel near the stomach,
into which they sometimes crawl, and from whence they ge

vomited.* If one of them is passed, there are generally more to follow. They live together in numbers varying from two or three, to twenty or thirty or more; and are most commonly found in children between the ages of three and ten years.

The Tape Worm is a very formidable creature. Its length is sometimes enormous:† it varies from five to ten, twenty or thirty feet or even more, and its average breadth is one-third

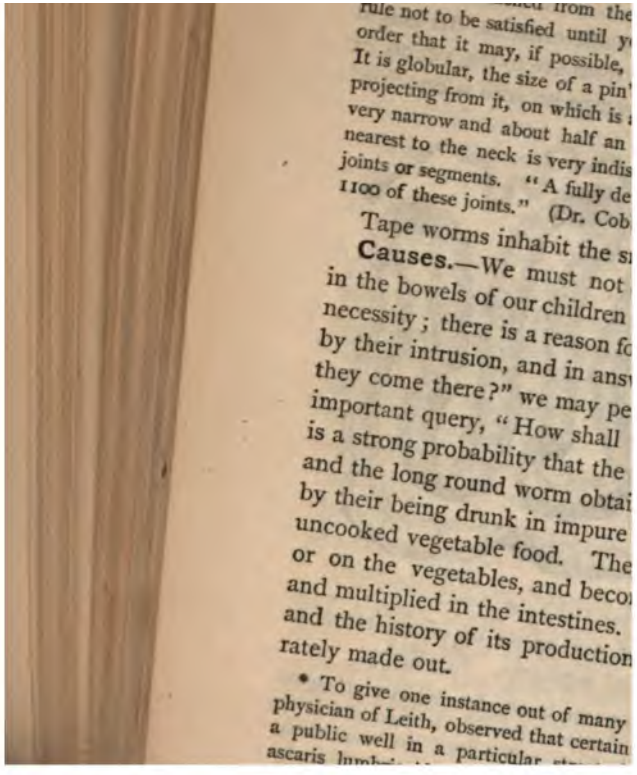


A TAPE WORM.—(From Prof. Rymer Jones.)

of an inch. Its body is flat, and made up of an immense number of joints or four-sided segments. See figure.

* M. Andral, of Paris, relates a case in which a child was strangled by one of these worms, which had crawled through the stomach and up the gullet; when it got to the top, it turned back and went down towards the windpipe, and got entangled in the larynx, or little cavity at its upper end.

† Marvellous tales are extant as to the proportions of these beasts. Vandoverer declares that a patient of his, after taking an emetic, brought up 40 Dutch ells of the worm, and might have brought up more "if he had not been afraid of puking out all his entrails, and for that reason bit the worm off." Boerhaave also maintains that he caused the expulsion of one, from the bowels of a Russian, 300 ells, *or* 225 *yards*, long



rule not to be satisfied until y
order that it may, if possible,
It is globular, the size of a pin'
projecting from it, on which is
very narrow and about half an
nearest to the neck is very indis
joints or segments. "A fully de
1100 of these joints." (Dr. Cob

Tape worms inhabit the s

Causes.—We must not
in the bowels of our children
necessity; there is a reason fo
by their intrusion, and in ans
they come there?" we may pe
important query, "How shall
is a strong probability that the
and the long round worm obtai
by their being drunk in impure
uncooked vegetable food. The
or on the vegetables, and beco
and multiplied in the intestines.
and the history of its production
rately made out.

* To give one instance out of many
physician of Leith, observed that certain
a public well in a particular
ascaris lumbri

Tape worm is common to many animals besides man. Very well; we will suppose a few segments of tape worm to be voided with the evacuations of an animal or a human being. Those segments are probably full of eggs. They have the power of moving about over the surface of the ground or amongst the herbage or elsewhere, until they burst and the eggs (or embryos) escape. Some animal, an ox, or pig, or rabbit devours the embryo with its food. Each embryo possesses a boring apparatus with three pairs of hooks, and no sooner does it find itself in the bowels of an animal (a situation so congenial to its tastes) than it breaks its shell and proceeds to bore through the gut and to migrate to other parts of the body, usually lodging itself in the fatty or muscular tissues. Arriving at its journey's end, it drops its hooks and assumes a bladder-like form, and changes, in fact, into another creature, the Cysticercus Cellulosæ. The history of one embryo is meanwhile being enacted probably in the same animal by thousands and hundreds of thousands. The flesh of the animal affected, in the way just described, is found so thickly studded with these Cysticerci as to alter its appearance, and give it a pale and mottled look; meat thus affected is called *measly*. When flesh containing the Cysticercus—measly flesh, in fact—is eaten, the creature again assumes hooklets, attaches itself to the inside of the bowel, and gradually, by adding joints to its tail end, grows into a tape worm again.

From the foregoing facts it appears, therefore, that flesh infested with this parasite (*see above*),—or as we call it popularly, measly flesh,—is the ordinary source from whence tape worms are developed. Pigs are particularly liable to be thus affected,* so too are rabbits, who are seldom altogether free from it; and the parasites occur in beef much more frequently than has been supposed. Thorough cooking will often destroy the parasites in the meat, but it cannot be trusted to do so with certainty on account of the wonderful vitality of these creatures.

The obvious lessons afforded by the above remarks are mainly these. (1) See that the water drunk by the household

* Widespread disease and considerable mortality were occasioned in some parts of Germany a few years back, by the eating of sausages made of *measly* pork. The flesh of those who died was found to be in the same condition as that of the diseased animals on which they had fed.

is pure, and do not be content with even that, but filter it through a carbon filter. (2) When fresh uncooked vegetables are eaten, let them not only be well washed, but washed with a *forcible* stream of pure water to drive all extraneous matters off their surface. (3) Let children, as a rule, abstain from pork and rabbit, or if it *is* used, let it be ascertained by careful inspection to be free from measliness; and let the last precaution be also taken with regard to the beef bought for consumption. (4) Let all meat, especially pork and rabbit, be thoroughly cooked. The daily use of *Salt*, as an article of food, appears to have some ill-understood influence in preventing the occurrence of worms.

Scrofulous children are more liable than others to be infected with worms, owing to an unhealthy condition of the bowels prevalent among them, which is favourable to the breeding of these creatures.

General Symptoms.—The presence of worms usually gives rise to a very disordered condition of the bowels, which in its turn is the fruitful parent of many other ills. This derangement consists of an increased secretion of mucus from the entire internal surface of the bowels, which passes off with the motions, forming very slimy stools; and the severity of the symptoms is in proportion to the amount of this mucous flux. The presence of worms in some children produces no manifest disturbance of the health; in others, serious illness is induced thereby. The disordered state of the bowels causes also a peculiar appearance of the tongue. It often looks flabby and slimy, as if it had been brushed over with gum; it is generally quite clean, but if not, is uniformly but very thinly coated with a light drab-coloured fur.

The result of this derangement of the digestive organs is that the child's food ceases to nourish him and gradual wasting takes place. The face gets pallid and puffy, the lower eyelid dark, and the upper lip swollen. There is

irritability of the nose, which the child constantly picks, and often intolerable itching of the anus (or fundament), which nothing can prevent him from scratching. The breath is often foul, especially in the morning. There is great restlessness at night, starting in the sleep and grinding of the teeth; and the child often wakes suddenly in a fright. A constant, dry, short cough is not uncommonly produced by the irritation of worms. The belly is frequently hard and distended, and when pain is complained of in it, it is usually referred to some spot near the navel. The appetite is changeable; at one time it seems almost impossible to satisfy the child's constant and unnatural hunger, and at others he makes his mother and those around him miserable by refusing to touch anything for long periods together. Vomiting may occur; possibly with the expulsion of a Long Round Worm from the stomach. The bowels are sometimes very constipated, sometimes in a state of slimy diarrhœa. By reason of the irritation of the bladder, which *sympathises*, as it were, with the bowels, the making of water is often rendered difficult and painful; and the water passed is frequently opaque and white,—*milky* in fact. Dr. Underwood* considers that an attack of convulsions accompanied by a small pulse and hiccup is an almost certain sign of worms. Although every one of the above symptoms is commonly observed in cases of worms, there are very few of them that can be said to be absolutely *distinctive* of the complaint; but the simultaneous occurrence of many of them would form the strongest presumptive evidence of the existence of parasites.

Symptoms special to each kind of Worm.—It is not enough to know or believe that a child has worms; it is necessary also, in order that the proper remedy may be used, to know *what kind* of worm is probably present.

* "Treatise on the Diseases of Children." Tenth edition. London, 1846.

The Short Thread Worm (or Oxyuris), almost always causes excessive itching of the anus, especially towards night. Constant straining and an ineffectual desire to void a motion, when there is none, is another symptom. Thread worms often cause a mucous discharge from the genitals of a female child, either from irritation propagated thither, or from the actual presence of worms, who sometimes crawl out of the anus and into the vagina (or "front passage"). When thread worms exist, if the radiating folds of skin around the anus are expanded and examined, some may often be found concealed therein.

The Long Thread Worm is not known to give rise to any distinctive symptoms.

The Long Round Worm (or Ascaris), usually causes more or less pain, occasional but severe, in the neighbourhood of the navel. A feeling of great sickness, and retching, are often induced by the passage of the worm into the stomach, whence it is frequently vomited up. This worm is more apt than any other to give rise to convulsions or other nervous symptoms. It also appears commonly to cause chronic diarrhœa, the motions being scanty, like thin mud, voided with much straining and very offensive.

The Tape Worm (or Tœnia), can scarcely be expected to "drag his slow length along" in a child's interior without giving rise to some painful deviations from health. Some of these are feelings of weight and "gnawing" in the belly, especially near the navel; these are sometimes increased to severe attacks of colic, with great distention of the abdomen. The appetite is usually ravenous, but notwithstanding, the child gets more and more emaciated; no worm produces such wasting as the tape worm. Diarrhœa and vomiting are rare. Portions of the worm are passed from time to time in the evacuations. No one can ever be *certain* that worms are present in any case, until he (or she) has *seen* one or more, or a portion of one of them.

Management.—When a mother suspects her child of harbouring worms, she must not, as is only too usual, have recourse to "worm cakes" or "worm powders," or any other quack nostrums, nor yet to the advice and prescription of a druggist, but she should send for her medical man. Time and space would fail me to tell of the hundreds of cases that I have known, in which unfortunate children have been soundly physicked again and again by their mother or nurse for worms, without any worms ever appearing, because there were none; and not only without any amelioration, but rather with aggravation of the children's symptoms, which proceeded really from some far different cause. It is much too often assumed that children are suffering from worms. If a child does not thrive, without any obvious cause for its not doing so, its friends very commonly soothe their consciences and satisfy the questioning of their minds by jumping to the often unwarrantable conclusion that "it has worms." But what is worse, is that they then frequently proceed to treat the unlucky little creature according to their own ideas of worm-doctoring, when perhaps he is really suffering from some serious malady that needs prompt medical skill.

(See Note on p. 257.) In case a mother who is out of reach of medical aid should find her child suffering from this pest, I append the following remarks. There are three things to be done. (1st) To kill the worms; (2nd) To expel them; (3rd) To remedy the disordered condition of the bowels that their presence has caused. The treatment for each kind of worm is somewhat different.

Short Thread Worms may be killed and expelled at the same time. First of all give a dose of castor oil or jalap at night, and the next morning a full-sized injection of warm soap and water; when this has been discharged from the bowel, give another, consisting of a quarter of an ounce of common salt dissolved in a quarter of a pint of warm water, or of a quarter of an ounce of tincture of iron,* mixed with a

* The strength and dose of each remedy for worms spoken of, are adapted for children between three and seven years old.

quarter of a pint of infusion of quassia.* This may require to be repeated on two or three consecutive days, but it will not fail to clear the bowel of all the myriads of swarming worms. Great irritation and itching of the anus may be allayed by applying a wet towel to the part at night, or by the injection of starch and laudanum (see Prescr. 2).

The Long Round Worm and the Long Thread Worm may easily be got rid of. First, clear the bowels by a laxative given at night. In the morning, two or three grains of *Santonine* may be given on some bread and honey, and it may be repeated again in the evening: another laxative on the following morning will often complete the cure. If it does not seem to do so, repeat the whole process again after a short interval. This drug often tinges the urine red, and sometimes, if taken very frequently, causes all objects to appear green to the eye. This symptom is of no consequence. The child should be kept on very low diet, while the above measures are being carried out. The following remedies for tapeworm are also usually efficacious against the long round worm:—

Tapeworm. There are three methods. (1) Clear the bowels by a laxative, as recommended above. During the ensuing day give five grains of the powdered bark of pomegranate root in some treacle every four hours, for four or five doses: then evacuate the dead portions of the worm by another laxative. (N.B. All remedies for tapeworm should be continued until the *whole* of the creature has come away, or until *its head* is found; and during the use of any remedy the child must be kept on as low a diet as the state of his health will permit.) (2) Give a dose of castor oil at night; in the morning after it has acted, give Prescr. 58, and in four or five hours more, another dose of castor oil. (3) Proceed as in the last, but use Prescr. 59 instead of Prescr. 58.

To rectify the unhealthy state of the bowels is always a necessary thing after the expulsion of worms, or they are apt soon to appear again. In severe cases the diet must be regulated. As little farinaceous food as possible must be admitted into it for a time; as nearly as may be it should consist of meat free from fat, fish, fowl—or flesh of any kind, except those above interdicted,—eggs, milk, and stale bread without butter. Twice a week for two or three weeks, if the motions continue slimy, a laxative may be given; castor oil or jalap (see pp. 161 and 163) will do as well as any. In addition to this, Prescr. 55, in doses pro-

* Infusion of quassia is made by steeping a quarter of an ounce of chips of quassia wood in cold water for one hour, and then straining off the liquid for use.

portioned to the age of the child, often does good—by restoring a healthy action to the bowels, especially in severe cases. Nearly all cases are benefited by iron being given in some form for a short time (see p. 175); perhaps some such Prescr. as No. 42 is as good as any.

Protrusion of the Bowel from excessive straining is often the result of the irritation of worms. The method of relief of this distressing condition will be found in the section devoted to the consideration of it.

CHAPTER XXXIV.

DISEASES OF THE KIDNEYS AND BLADDER.

SECTION I.—DROPSY.

Nature of the Disease.—Dropsy may arise from many different causes, but the dropsy that I propose to speak of here, takes its origin in *inflammation of the kidney.*

Cause.—Since nineteen cases of dropsy in children out of twenty follow Scarlet Fever, it is to this particular kind of dropsy that we will confine our attention now. The cause is *cold taken during convalescence*, that is, whilst the skin is peeling off. Cold probably acts thus. It checks the action of the skin, which is throwing off the fever poison; the poison is thrown back into the system, and the kidneys are called upon to eliminate it; the poisoned blood flows into them in such quantity as to overload them, and they become congested and will not act; then, since they are not secreting fluid as they ought to do, the fluid remains in the system, and dropsy is the consequence. When speaking of scarlet fever, I mentioned (p. 270) how slight a degree of chill during this period was sufficient to give rise to dropsy, and laid emphasis on the fact that it was impossible to be too careful to shield the child convalescent from that fever from every semblance of cold. Dropsy appears to be more common after mild than after severe cases of scarlet fever; perhaps because the former cases during their convalescence are less carefully tended and guarded from cold than the latter.

This is strictly a preventable disease.

Symptoms.—These are fully described on p. 272.

Prospects of the Case. — There is always ground for anxiety, whilst the dropsy is progressive, since at any time water may be effused into the membranous bag (or pericardium) in which the heart is enclosed, into those other membranous bags enwrapping the lungs (the pleura), into the substance of the lungs themselves, or into the brain. In any of these events the symptoms at once become serious. As a rule the danger is proportional to the amount of dropsy. It is a sign of recovery when the quantity of water passed begins to increase.

Nursing.—From the very first appearance of anything like dropsy,—a mere puffiness of the face, for instance,—the child should be put to bed. The chief thing to be done is to restore the function of the skin, which has been checked by exposure to cold; in other words, we must obtain a free perspiration. The ordinary means and internal remedies for attaining this end are not admissible in this disease, since nearly all of them act on the kidneys as well; but the kidneys are inflamed, and therefore must not be acted on at all. We possess an excellent substitute in the Hot-Air Bath and in the Vapour Bath. The first-mentioned is the best, because it can be administered without removing the child from bed, and therefore without risk of his taking cold. It may thus be done. An arched framework or "cradle," of wire, wood, or wicker, is to be placed upon the bed, under which the child lies, and upon which the bed-clothes rest.* The bed-clothes should be so arranged and tucked in as not to allow of the admission of cold air beneath them. Next

* Any other impromptu contrivance will do almost as well, which lifts the bed-clothes well off the child's body and prevents the ingress of cold air beneath them.

take an ordinary large-sized kitchen funnel made of tin, fix on to its pipe a long piece of india-rubber tubing; adjust the funnel upside down, with its mouth immediately above the flame of a spirit-lamp, or of a gas light; the other end of the tubing must be carried under the bed-clothes and made fast to the framework. The funnel and lamp should be on a lower level than the surface of the bed; then the air heated by the flame constantly ascends through the funnel and tubing and proceeds into the bed. This hot-air bath should be kept in operation till copious perspiration is induced, an event which it seldom fails to bring about. The perspiration is sometimes so profuse that it is a wise precaution to remove the child's nightgown before beginning, and to place him upon a folded blanket. When the process is over, sufficient time having been allowed for slow cooling, a warm nightgown may be put on and the blanket removed. If the vapour bath is ordered to be used, a description of the method of giving one will be found on p. 182. Either bath may be used daily, if the child's strength admits of it, till a distinct impression has been produced on the disease. The *Diet* must be nourishing,—especially if purgatives, which have a lowering tendency, are being employed,—yet very simple and digestible. Selections may be made from the Ordinary and Extra Diet Table, p. 78; stimulants are not on any account to be given, except some exceptional condition arises in which a doctor may find it right to order them. The diet should consist, as far as possible, of solid or semi-solid food; the amount of liquid taken should be small. Considerable relief and an increased flow of urine are often obtained by the application to the loins of a large mustard poultice (if the child is old enough to bear it), or of a mustard-and-linseed poultice (if he is not old enough); this should be followed by a succession of two or three large and hot poultices of linseed only. During convalescence,

and for some time after the dropsy has passed off, the little patient must be most jealously guarded from cold and great alternations of temperature. The change back to the child's usual diet must be gradual and conducted with care. A removal for a short time to the seaside will do good; so also will warm sea-water baths, the warmth of the bath being gradually decreased day by day, till it is merely tepid.

Treatment.—(See Note on p. 257.) Purgatives afford the simplest and most rational medicinal prospect of relief: and of these the best for use are jalap, Epsom salts, or seidlitz powders. Whatever purgative is used should be given in one full dose early in the morning, before any food is taken, and should not be repeated again that day. If the strength of the child admits of it, a dose may be given *every* morning, till the symptoms begin to abate. Of the Compound Jalap Powder, the dose is from five to fifteen grains, according as the age of the child varies between one year and twelve years old. It may be given in a little preserve or otherwise, but does not dissolve in liquids. The use of Epsom salts is not adapted for infants: the dose for children between three and ten years old is from ten to twenty grains, according to age. If taken with a little syrup of ginger and weak peppermint-water, it does not gripe. For seidlitz powders, see Prescr. 37. When the symptoms are abating and the amount of urine increasing, sweet spirits of nitre may be given in doses of from ten to twenty minims (for children between two and ten years old, according to age) three times a day in a little water. Some cases that have been severe during convalescence require for their restoration a good tonic. As good a one as any is mentioned in Prescr. 42.

Mortality.—In the year 1870, in England, there were 972 deaths from dropsy in children under ten years old; in the same year there were 29,245 deaths from scarlet-fever in children under the same age; which gives one death from dropsy to thirty deaths from scarlatina:—but when we recollect that some of the above deaths from dropsy may have resulted from other causes than scarlet-fever, we find the fatality of the former, compared with that of the latter, to be even less than one to thirty.

Section II.—Incontinence of Urine.

A want of power to hold the water is a troublesome affection of frequent occurrence among children of both sexes between the ages of three and seven or eight years, and sometimes persists to an even later age. The involuntary or seemingly unrestrainable flow of urine may occur by day or by night, most frequently the latter. The child's habit of constantly "wetting the bed" or soaking its clothes becomes a trouble and an annoyance that must be put a stop to.

Causes.—In the majority of cases the cause is to be found in *bad management.* The child may have been allowed to take fluids freely just before going to bed; he may have been permitted to lie with the clothes kicked off and exposed to the cold, or upon his back, a position that seems to favour the evacuation of the bladder, if at all irritable; or it may result (in the case of a *young* child) simply from inattention on the part of the nurse, to her duty of taking him up once or oftener in the night for the purpose of passing water. Other causes of this condition are the presence of short thread worms in the bowel; acidity of the urine, when it often becomes thick and turbid on standing, and always turns blue litmus paper pink; constitutional debility; a predisposition to gravel, or a stone in the bladder (rare); and very occasionally disease of the kidney. It may often be observed that this annoying infirmity "runs in families."

Management.—The first thing to be done is the inculcation of good habits. For two or three hours before going to bed the child should be altogether debarred from taking liquids, or should have as little as possible. He should be taught to empty the bladder regularly every night before going to bed, and should be taken up, or awoke, two

or three times in the night, at stated intervals, for the same purpose. He is the creature of habit, and if the habit of passing water at regular and set times can once be formed, the cure is achieved. If the infirmity appears to be influenced by the child's lying on his back, this can be remedied by tying a ball of thread or some other small article to the middle of his back in such a manner that when he turns on his back, he may be rendered uneasy and turn again on to his side.

But there are many cases that proceed from definite causes, and therefore require definite remedies. In the event of medical assistance being unattainable, the following suggestions are offered. If there is reason to suspect the presence of worms, expel them (see p. 481), and the incontinence of urine will probably cease. If the water is unduly acid, correct it by the administration of the bicarbonate of potash, for two or three days. (Dose: for a child of three, five grains three times a day; for a child of eight, ten grains three times a day, dissolved in water or milk.) A pleasanter and perhaps as efficient a remedy, if not very sweet, is the lemon kali or citrate of potash, sold by chemists. Children will drink as much of this, in a state of effervescence, as you like. A large number of cases, which appear to be the result of debility, are most benefited by the use of iron and quinine. (The best preparation of iron in these cases is the tincture of iron, given in doses of from three to ten minims in water two or three times a day—one minim for every year of the child's age. Quinine may be given mixed with a little pounded white sugar or in preserve, in doses of half a grain for children between three and five, of three-fourths of a grain for those between five and eight, and of one grain for those above eight, two or three times a day.) A large belladonna plaster applied to the lowest part of the back, and worn there for a day or two, or a little extract of belladonna smeared on the skin in the same region, and allowed to dry in, usually lessens the irritability of the bladder, and tends to cure the infirmity. (N.B. Since the extract of belladonna is very poisonous, great care must be taken that the child does not smear his fingers with it, and then get them into his mouth.)

Section III.—Pain in Making Water.

Medical Name.—Dysuria. This is *a symptom* of a disordered condition rather than the disordered condition itself.

Causes and Symptoms.—(I.) If the pain in making water is caused, as it often is, by the irritation of very acid urine, this will probably be found to be scanty in amount, high-coloured, often becoming thick on standing, and always turning litmus-paper red. This acid state of the water is often connected with a feverish condition of the system, and may be a result of indigestion, distinct fever, rheumatism, or other maladies. (II.) Another cause, occurring among boys, is an unnatural elongation of the foreskin, which becomes irritable, inflamed, swollen, and very painful, either from the constant passage of the urine over it or from rubbing against the child's clothes, or from both causes. (III.) Inflammation of the urinary aperture itself is a cause that will give rise to great pain in passing water in either boys or girls. (IV.) A more serious, constant, and severe cause of this pain is stone in the bladder. The leading symptoms of this formidable and distressing disease are, a very frequent desire to make water, the flow of which is often stopped suddenly, as if turned off with a tap, and accompanied by great pain. Severe, dull, and heavy pain both in passing water and at other times, referred to the end of the penis in boys, or to the urinary aperture in girls; occasionally there is blood in the water. (V.) In boys, from the preternatural narrowing of the orifice in the foreskin, whereby its margin becomes inflamed and only allows the water to pass with extreme pain.

Remedial Measures.—(See Note on p. 257.) In cases resulting from the cause *first* mentioned, endeavour to

correct the acidity in the manner described in Section II. of this chapter. The child may also be encouraged to drink largely of water, barley-water, or barley-water and lemon-juice, in order to dilute, as it were, the acid in the urine. The diet must also be examined and regulated; it should be plain, unstimulating, digestible, and containing but very little sugar in any form. In cases resulting from the second cause mentioned, all that can be done by unprofessional persons is to use the utmost cleanliness to the part affected, well washing and fomenting it with warm water after each occasion of passing water, and in the intervals, keeping it enveloped in strips of soft linen kept wet with Goulard lotion, used tepid or warm. For cases resulting from causes III., IV. and V., nothing can be done except by a medical man.

SECTION IV.—ON A FORM OF WHITES OCCURRING IN FEMALE CHILDREN.

Medical Name.—Infantile Leucorrhœa.

Symptoms.—Girls from infancy up to puberty, especially those of a strumous constitution, may, at times, be the subjects of a mucous discharge from the "privates," which often becomes, before it has existed long, thick, of a yellowish-white colour, and more or less copious. It does not usually produce any pain in passing water, but gives rise to a good deal of soreness and chafing of the surrounding parts.

Distinctions.—A very great deal of trouble and misery to parents have arisen from this complaint, by their having mistaken it for another disease somewhat similar in its appearance, but resulting only from impurity and licence. Many cases have occurred under my own observation and

probably under that of every member of the profession of any experience, in which the appearance of this discharge in girls between eight and fourteen, or even younger, has filled the mother's mind with all sorts of horrible misgivings and painful fears. She may, of course, avoid all this by at once consulting her medical man, who will point out the real nature of the case and allay her apprehensions. But in case there is no medical man to consult, I will state the chief distinctions between the two complaints, the spontaneous and the communicated. In the former, the discharge is nearly white, there is little or no swelling and inflammation of the parts themselves, there is no pain in passing water, and the child is most frequently a scrofulous one; in the latter, the discharge is profuse, thick and yellowish, there is a good deal of swelling and inflammation, there is great pain in making water, and probably marks of external injury are visible.

Is it contagious?—The discharge is extremely contagious; applied to the eye, it produces violent inflammation.

The following case was reported in the *Medical Times and Gazette*, January 17th, 1857. In the year 1855 a husband and wife both found themselves suffering from a discharge; the disease, however, being most virulent in the lady's case. Each accused the other of being the source of infection, mutual recrimination ensued, and both, conscious of their individual innocence, felt bitterly aggrieved. Fortunately for themselves, they had the good sense to appeal to their surgeon rather than to the law. Having examined into the state of the case, this gentleman desired to see the children, when he found that a girl of eight or nine years old was the subject of an unmistakable attack of infantile leucorrhœa, or "whites." She had slept with her mother, and evidently had infected *her;* hence the husband's malady—et hinc illæ lachrymæ. It is worth notice how much probable misery and unfounded estrangement of affection were saved by the simple and timely appeal to an intelligent medical man.

From all this it is evident that every child afflicted with

this complaint should have sponge, flannel, soap, towels, &c. *strictly* set apart for her special use, or mischief will result.

Causes.—A strong *Predisposing* cause is the existence of the scrofulous constitution (p. 318); so also is the condition of system resulting from some recent eruptive fever. Of *Exciting* causes, the principal are, — teething, worms, neglect of cleanliness.

Treatment.—Fastidious *cleanliness* is one remedy to be constantly used, without which no other can succeed.

(See Note on p. 257.) The affected parts should be frequently sponged (say, every four hours) with tepid water, and at intervals with some astringent lotion, such as Prescr. 7; or with one made by dissolving half a drachm of alum or sulphate of zinc in six ounces of water. The lotion is often caused to come more perfectly into contact with the whole affected surface, when it is applied by means of a glass syringe. Cold hip baths are useful in obstinate cases in girls above four years old. If the complaint is noticed at the very outset, a linen compress kept always wet and applied over the parts, will often cut it short. If the child is teething or has short thread worms, these conditions should be attended to in the manner described in the chapter devoted to each. The diet must be plain, nourishing, and digestible. Many cases occurring in pale and weakly children will require the judicious use of such tonics as iron and quinine (see pp. 173 to 176), and it will frequently be necessary to bear in mind that, after all, the malady is but a symptom of scrofula, and will therefore most readily yield to cod liver oil (p. 321) and iron, especially the syrup of iodide of iron (p. 175). In cases difficult of cure, sea-air and sea-bathing are eminently useful.

This is very often an obstinate complaint, and the remedies adopted have sometimes to be persevered in for weeks or even months before a cure is affected; but perseverance will ensure a cure.

CHAPTER XXXV.

DISEASES OF THE SKIN.

SECTION I.—CHAFING AND REDNESS OF THE SKIN.

THIS is a species of *Erythema*. It consists of large, slightly raised, red patches of variable shapes, disappearing on pressure by the finger.

Causes.—It may be caused by the friction of two folds of skin against one another, as in the necks, groins, and buttocks of fat infants; in which case the surface will be moist. Neglect of cleanliness, or of properly drying the infant, sometimes induces this; sometimes it arises, where this has not been the case, apparently from disordered stomach or bowels.

Management.—Wash the child with warm water without using soap: dry him thoroughly by dabbing with a very soft towel and well dust the inflamed places over with oxide of zinc powder. See that the diet is correct in all respects. It may sometimes be also necessary to give some very mild aperient. (See p. 161.)

SECTION II.—NETTLERASH (*Urticaria*).

This is a non-contagious and short-lived eruption, consisting of long, elevated patches or wheals; they are at one time white and at another red. The rash has obtained its name from its likeness to that produced by the sting of nettles: it gives rise at first to great burning and tingling in the part affected, and afterwards to a distressing itching. The

rash is very evanescent. It often sets in with more or less fever, and may be accompanied by vomiting or diarrhœa (a natural cure by-the-by), or by cough or cold.

Causes. — There are two kinds, the *acute* and the *chronic* nettlerash. The commonest cause of the acute form is some error in diet. Shellfish, unripe fruit, cucumber, nuts, pork, pickles, and many other indigestible things will produce it in children who have any predisposition to the complaint. It may be excited by the irritation of teething also. The cause of chronic nettlerash cannot be briefly stated; it is associated with very many morbid conditions of the system. It may be either continuous or intermittent, and is most obstinate in resisting treatment.

Management.—*Of the Acute Nettlerash.* (See Note on p. 257.) If the cause is obviously an error in diet, assist or imitate the curative action of Nature (see above) by giving an emetic to dislodge the offending matter from the stomach (see p. 167): if it be too late for this, give a purgative—a dose of compound jalap powder for instance, (see p. 163)—to carry it off as speedily as possible. After either of these have acted, three or four doses of carbonate of soda (three to ten grains between the ages of one and seven; ten or fifteen grains for a child between seven and twelve) will do good, dissolved in water, with the addition of a little sweet spirit of nitre (see p. 166), and taken three times a day. If the rash appears to be connected with teething, the mouth and gums must be attended to in the manner described in chapter VIII., p. 248.

Chronic Nettlerash is usually so intractable a malady that the personal and often long-continued attendance of a medical man is essential for its cure. Each case requires treating on its own merits; and no general directions as to the management of a child affected with it can be given in a work like this.

SECTION III.—ECZEMA (*Humid Tetter or Running Scall.*)

There are very many varieties of eczema; but space allows me only to mention those most common to children. Eczema is inflammation of the minute ducts in the skin that pour out the sweat. It is very common among infants at the breast (in whom it may appear at the end of the first month or six weeks) and in young children; and unless promptly and properly treated, *may* continue for an indefinite period.

The *simplest* form of eczema is this: an eruption of vesicles about the size of a small pin's head, filled with *clear* fluid, and very numerous, comes out without warning, but accompanied with more or less redness of the portion of skin affected. The fluid in the vesicles gradually becomes milky; it is then slowly absorbed and the surface skin of that part scales off. Successive crops often come out for two or three weeks. It gives rise to a great deal of itching. Scratching, by breaking the vesicles and irritating the inflamed skin, of course, makes matters worse. The favourite situations of this form of eczema of children seem to be the bends of the elbows and knees.

The *commonest* form of eczema among children presents the following appearance. The simple eczema, just described, very speedily passes on into a more inflamed condition, in which the discharge from the ruptured vesicles excoriates the surrounding parts. When dried this forms yellow crusts or scabs, covering the affected portion of the skin. From around and beneath these crusts and from cracks in their surface, issues still more discharge, at first opaque and milky, and afterwards yellowish and almost mattery. Through the cracks in the crusts, or if one becomes detached, the very inflamed, angry, and often ulcerated condition of the skin is visible. The most usual situation for this form of eczema is the scalp, the cheeks, and ears. When occurring

in these parts, it causes enlargement of the glands behind the ear or beneath the jaw. Sometimes the whole scalp of an infant is capped with rugged, thick, yellow crusts. The privates of children are often the part attacked. The child *may* be covered from head to foot with this distressing disease, but it is not usually so. *It is not contagious.*

Causes.—The commonest cause is imperfect digestion of food, which is often produced by the disordered condition of the mother's milk, whether from diet or any other cause; but when the disease is once established, it is not always cured, as might be expected, by removing the cause.

"It is remarkable how trivial an exciting cause may become the origin of this distressing malady. A lady, six weeks after her confinement, travelled by railroad from London to the seaside, carrying with her her infant. She was chilled by the journey, was feverish during the night; her infant was feverish the following day, and threw out a copious eruption of eczema, which brought the child to me some months afterwards. This day a neighbour brought me her infant covered with eczema from head to foot; the child was a few months old. In her confinement the mother lost her husband under painful circumstances; the distress caused by this affliction was transmitted to the offspring as a severe eczema. How small the cause of mal-assimilation in these cases!—which may be taken as a type of the whole family; how easily is the assimilative function of infants disturbed! how difficult often to restore!"—Mr. Erasmus Wilson: On Diseases of the Skin. Edition IV., p. 170.

Teething, to which rashes of *every* kind are so freely attributed, is seldom, *if ever*, the cause of eczema during the first six months of life; neither is the eruption likely to disappear when the teeth are cut.

Management.—If the patient is an infant at the breast, let the mother examine into every detail of her own health and diet for the cause, and endeavour to remove it. If the child is past infancy, its diet should be simple, digestible and nourishing; plenty of good milk and light puddings, and a little of the juice of meat (such as No. 16 in Appendix A.,

diluted with water), or good beef-tea or broth especially. The part of the skin affected with eczema is not to be washed at all, but is to be wiped, or rather dabbed very tenderly and carefully with a soft, dry napkin or cloth. A child afflicted with this malady should at once be put under the care of the medical adviser of the family, or his recovery may not take place for weeks, months, or even years.

For the benefit only of such unfortunate persons as are out of reach of medical assistance, I offer the following suggestions. The first thing to be done is to endeavour to eliminate the disease from the system. For this, give one grain of calomel with a little pounded loaf sugar, once, or if necessary, twice a week,—and this may be given with perfect safety even to a young infant, if otherwise strong and healthy. With many children a dose of rhubarb and carbonate of soda (two to ten grains of rhubarb and three to ten grains of soda for children from one month to six or seven years old, according to age), given three times a week, seems to answer nearly as well, and in a mild case is to be preferred. At any rate, thorough clearance of the bowels is the first thing necessary. The second thing to be done is to attend to the eruption itself, and to soothe the irritation and distress it produces. For this we want some oxide of zinc ointment (Prescr. 60) rubbed up with one teaspoonful of spirits of wine to every ounce of ointment. First detach the scabs, if there are any, by a few light bread or linseed poultices; then apply the ointment, freely but gently, to every portion of the scalp that is affected—so that it is completely covered in from the air thereby—every night and morning. The ointment must be kept in position by a piece of linen rag placed over it. This treatment is to be persevered in as long as any crusts or any eruption or irritation of the skin remains. The third thing to be done is to restore the blood to its proper condition. I can say but little on this point; for though there is a medicine, which in the hands of an experienced medical man is almost an infallible cure for this disease, it is one that ought never to be used by anybody but a medical man. When eczema is of long standing, when it produces emaciation, and when it occurs in strumous children, cod liver oil (see p. 321) is very useful.

Section IV.—Shingles (*Herpes zoster*).

The eruption of this complaint consists of vesicles, filled at first with clear fluid, occurring upon inflamed patches of skin. It is remarkable from the fact that the inflamed patches always appear in a demi-zone, or half belt, as it were, around the body. The eruption either goes half round the circumference of the body, or, beginning in the upper part of the back, in the middle line it passes across the shoulder and terminates near the middle of the breast-bone.

There is a dark and ancient saying held in much awe by the unlearned, which states that when the zone of eruption quite encircles the body, death will ensue. It will be a satisfaction to know that there is not a particle of truth in it; but I confess never to have seen a case that *did* completely encircle the body.

On the fourth or fifth day the fluid in the vesicles or blebs gradually dries up, and they shrivel and form dark flat scabs, which soon drop off. Shingles is usually ushered in with a good deal of fever and constitutional disturbance, and especially with burning and shooting pains in the region of the coming eruption. The pain is often severe and incessant, and is not always relieved by the appearance of the eruption.

Cause.—Cold taken during peculiar conditions of the system is probably its most usual cause.

Treatment.—(See Note on p. 257.) Mild saline laxatives—such as small doses of salts, Friedrichshall water, seidlitz powders (Prescr. 37), or the effervescing citrate of magnesia,—warm baths, and a plain and rather low diet are the best remedies. It is often difficult to allay the pain by any means. Many valuable remedies available by a medical man must not be meddled with by an uninstructed person. Hot poppy-head fomentations sometimes give relief, and painting the painful part

over with extract of belladonna has frequently succeeded. The eruption should be protected from injury by being well dusted with starch powder or oxide of zinc, and then covered with a layer of cotton wool.

Section V.—Tooth Rash (*Strophulus Confertus*).

This is a severe variety of Red Gum (see p. 224). The pimples are smaller, but more numerous; they are also less red, but more lasting than those of Red Gum: they are collected into patches, and clusters of them usually run into one another. When the rash has subsided, the scarf skin rubs off in bran-like scales. The patches of rash may be limited to any one portion of the body, or they may be distributed all over it. Heat and irritation, and occasionally slight fever also, accompany the rash.

Cause.—The irritation of teething.

Management.—Attend to the condition of the mouth and gums (see pp. 252 to 256) rather than to that of the skin. If the bowels are not acting well, give a mild saline laxative. The itching of the skin, if severe, is relieved by a tepid bath, by the application of lemon-juice (if the skin is not scratched), or of Prescr. 7.

Section VI.—Dandriff (*Pityriasis*)

Is produced by chronic inflammation of the skin of the scalp; though it may, and often does, occur elsewhere. It is attended by itching and by the detachment of large quantities of small scales or *scurf*. It is not at all uncommon in young infants. There are three principal forms of it distinguished by the colours of the scurf. In one it is white; in a second, red (rare); and in a third and common kind it is yellowish-brown, and looks exactly like a film of dirt adhering to the top of the baby's head. If the com-

plaint continues long, the hair gets considerably thinner. There are no constitutional symptoms.

Treatment. — Observe strict cleanliness, using warm water and glycerine or castile soap. If it is the scalp that is affected, cut the hair off close with scissors, unless the complaint yields to treatment early. A very soft hair brush should be used.

In a case of the yellowish brown scurf, an ointment made of one part of citrine ointment, diluted with two or three parts of fresh lard, may be applied morning and evening. The application of oil or grease is useless. Dr. Edward Ellis recommends the use of a lotion containing borax (two drachms) dissolved in elder flower water or "soft water" (four ounces).

In cases of the white scurf (of which variety "scurfy heads" are the most familiar example), the use of the white precipitate ointment for a few days—rubbing a little in to the skin morning and evening—usually effects a cure: but it is a remedy better left alone except under the direction of a medical man. The head should not be washed during the use of the ointment.

The hair should be well cleared of scurf by the daily gentle use of a very fine tooth comb (if the scalp be the part affected), taking care not to scratch or irritate the skin thereby. The head should be kept very cool.

Section VII.—Ringworm (*Tinea Tonsurans*)

Is a contagious disease of the skin produced by a microscopic vegetable parasite.* It occurs in circular patches, varying in size from that of sixpence to that of half-a-crown. The surface of the round patch is covered with dry white scales, and the hairs in it look as if they had been gnawed off close to the skin: in reality they have broken off, because they are diseased and brittle. These short broken-off hairs are full of the spores of the fungus parasite above named, as a glance at one through a good microscope renders evident. This disease is very apt to

* Called by the scientific *Tricophyton Tonsurans.*

spread. It usually occurs on the scalp, but frequently also on other portions of the body. It is highly probable that it can be communicated by contact, by using the brush, comb, sponge, or towel, &c. of one affected by it.* The child is usually in a low state of health; and there is but little doubt that "poorness of blood" distinctly favours the development of the disease.

Ringworm of the body presents a slightly different appearance to the same disease on the head. It occurs in circular patches of a reddish hue, coated with a layer of minute white scales, which often makes the patches look much whiter than the surrounding skin. The margin of the patch is usually slightly elevated, dotted with little vesicles, and rather angry looking.

Treatment. — Observe strict cleanliness: wash the affected part twice a-day with carbolic acid soap and soft water. Cut the hair off quite close to the skin, over and just around the diseased patch; if there are any scabs or crusts of discharge, detach them by a poultice. Use a fine-tooth comb daily, to bring away the detached and diseased hairs.

(See Note on p. 257.) Then the patch, or patches, may be painted thoroughly, and a little over the margin, with strong acetic acid: this application requires repetition once a week as long as any trace of the disease remains.† On every intermediate day it may be anointed with citrine ointment, diluted with fresh lard (in equal parts), or washed with a lotion made by dissolving a drachm of liver of sulphur (or sulphurated potash) in a pint of water. (This lotion is only useful when freshly made.) As a rule, a child suffering from ringworm will also be found to be in a state of ill health, in which iron (p. 173), quinine (p. 175), and cod liver oil (p. 321) will be useful.

* It is only fair to state that so high an authority as Mr. Erasmus Wilson, believes that it is *not* contagious.

† Sometimes *one* application of a solution of equal parts of strong carbolic acid and glacial acetic acid will suffice, if carried well outside the ring.—H. S.

An important part of the treatment consists in the restoration of the child to sound health: let him off his lessons for a time, let him live as much as possible in the open air, if it can be managed; let him also have change of air; clothe him warmly, and feed him plainly, but plentifully, on nourishing articles of diet.

Section VIII.—The Itch (*Scabies*).

This distressing and humiliating disease is probably only propagated by contagion,—that is, by actual contact with one who is the subject of it, or with anything that he may have touched or that may have been in contact with his body. It is popularly supposed to be engendered by *dirt*, but though dirt may foster and predispose to it, it does not originate it. More than once I have had under my own care families of the most unexceptionable social status, who were the victims of this unsavoury malady.

Cause.—The symptoms are caused by the inroads of parasites, — the itch insect or *Acarus Scabiei*. These miserable little creatures burrow in the skin and live at the end of their burrows, where, by diligent search and the aid of good eyes or a lens, they may be seen as minute opaque specks and dug out with the point of a needle.

Symptoms.—The only symptom complained of by the unhappy child is the intolerable itching, which becomes worse when he gets warm in bed. If the skin is examined before it gets torn and defaced by scratching, minute pimples or vesicles will be seen: the pimples mark the spots where the insects have formed their burrows. Sometimes a rash also appears on the stomach, and on the front of the fore-arms and thighs. The scratching often cruelly tears the skin, and if the child is out of health at the time, pustules and festering spots may form. The disease may

occur on any part of the body, but the insects show a preference for the wrists, the spaces between the fingers, or, in young children, for the bottom of the back, perhaps from contact of that part with the hand of the servant who carries them. It occurs very rarely on the head, face, or neck.

Treatment.—Isolate the child from all others, and carefully wash all articles and utensils that have been used by him; it is only by the most rigorous watchfulness in this respect that the complaint can be prevented from spreading through the house. The Itch never gets well spontaneously; it must be *cured;* and fortunately there is a remedy that is absolutely certain to kill the insects and cure the disease in a short space of time.

In the absence of medical advice, the following plan may be adopted. First of all let the child have a warm bath; he may then be thoroughly anointed over every part of the body, where the itching occurs, with sulphur ointment (Prescr. 64): if possible the child should lie in bed between blankets and in a flannel nightgown, both to facilitate the cure and to prevent him from spreading the complaint; but if this cannot be, he may be lightly dressed with some flannel garments of little value next to the skin. The ointment is to be well rubbed *in*, but not rubbed *off*. This rubbing should be repeated every night and morning for three days. He should then have a thorough washing with hot water and yellow soap, and if there is no subsequent itching, he is probably cured. If irritation should recur, pursue the remedy a little longer. Do not change the child's flannels or blankets during the process of cure, and when he has recovered, burn the former and disinfect the latter by a strong heat and subsequent soaking in boiling soapsuds. If the sulphur is *too* freely used, it sometimes *gives rise to* an eruption. The child needs no medicine internally.

PART IV.

DIVISION I.—SURGICAL INJURIES.

CHAPTER I.

ON WOUNDS AND THE STOPPING OF BLEEDING.

SECTION I.—BRUISES.

IN a bruise the flesh beneath the skin is wounded, but there is no injury to the skin itself. That this is so is evident from the fact that certain minute bloodvessels are ruptured and more or less blood poured into the tissues beneath the skin, giving rise to the well-known "black and blue" appearance of a bruise. This discoloration is sometimes very intense, and is always a measure of the amount of blood effused. The black or blue colour, as is well known, gradually changes through a purplish green to brown and yellow, as the blood that has been poured out becomes absorbed again. There is very seldom any increase of the natural heat of the bruised part, unless the injury has produced inflammation also. The later that the blackness appears in a bruised part, the deeper is the site of the injury, and often the more serious is the bruise.

Treatment.—There are three objects to be kept in view. (1) To prevent the pouring out of any more blood under the skin; (2) To prevent inflammation; (3) To

cause the blood already effused to be absorbed again as soon as possible. If the bruise is at all a severe one, the first two objects may be attained by the use of the ice-bladder (see p. 185), which may be applied at intervals during the first few hours after the accident. When the use of this is discontinued, the third object may be brought about by keeping the part covered by linen rags kept always wet with a lotion composed of Tincture of Arnica (1 part), and water (3 parts); or Prescr. 7 may be applied in the same way. In addition to this, bandage the part firmly, if it is a part the position of which admits of bandaging. If the skin over the bruise seems weak or likely to give way, carefully protect it and use every endeavour to prevent it from doing so. Do not apply leeches to a bruise. The application of beef-steaks or raw meat is both useless and ridiculous.

Section II.—Cuts and other Wounds.

These are of different kinds: there is the *clean* cut, as it is called, done with a sharp-edged instrument; the *lacerated* cut or torn wound, done with a blunt-edged instrument or torn by a hook or other object; the *crushed* or *bruised* cut or wound, as in an injury from a blow with a stick, or a stone, or from the fall of a heavy weight; violent injuries from machinery, from being run over and the like, are usually of this class; and there is the *punctured* wound, as from the bite of an animal, or from some sharp-pointed instrument. Just as cuts and wounds differ in the way in which they are produced, so do they differ in their seriousness, in their way of healing, and in the treatment necessary for each.

Treatment of a Clean Cut *or Incised Wound.*—There are three principal things to be done,—(1) To stop the bleeding; (2) To clean the wound and remove extraneous matters, such as clots of blood, grains of sand or dirt,

bits of glass, &c.; (3) To adapt the lips of the wound and obtain union of its sides. The *first* point will be fully treated of in Section III. of this chapter. The *second* object is usually accomplished by washing out the wound well with a stream of cold water and carefully sponging its sides with a soft sponge; but the majority of clean cuts do not need this, because no foreign matter has ever got into them. The *third* point is one of some importance. We should always try, if possible, to get the gash to heal by direct union of its sides;—or, as doctors call it, "to obtain union by the first intention." This is partly a question of good management and partly one of good constitution. If the child's constitution is healthy, it will be easy to obtain direct union, even if the cut is a large one,—he has "good healing flesh," as they say. If his constitution is weakly and poor, it will be very difficult to obtain direct union, even if the cut is only a trifling one. Wounds healed by the "first intention" leave no scar; those healing otherwise usually do.

For ordinary small cuts of the fingers or hand, the best plan is to bind them up with a narrow strip of dry lint or linen rag, applied with moderate tightness and left on for twenty-four hours, after which time it may be detached by soaking in warm water. Longer and deeper cuts should have their edges brought together by strips of plaster, especially if they occur on parts of the body where there is space for the use of plaster. The bleeding must first be stopped. Strips of plaster for uniting the lips of a wound of any size must be *long*, and *broad* enough to give support to the edges of the cut. Short narrow strips are useless. Each strip must be attached first on one side of the cut, and then (a slight pull being taken on it, by which the edges are brought together) to the other. The best plaster for use is Isinglass Plaster—clean, transparent, adhesive and unirritating. Soap plaster is good and useful where a strong

support is needed. Diachylon will do, if nothing better is at hand, but it is not often good for much.* The strips of plaster, when once attached, should not be changed, unless they become loose; if they will, let them remain on until complete union is obtained. In taking off strips of plaster from a wound, loosen both ends at the same time, so that the middle of the strip, and not one end, is the last to leave the skin: in this way pulling the wound open again may always be avoided. Wounds sometimes are of such dimensions or in such localities, that plaster either cannot be used or is not sufficient for the purpose. In such cases and in those in which it is necessary to bring the edges very accurately together to avoid scar and deformity, as in deep and large wounds of the face, sutures or stitches may have to be employed.

Of course if there is a doctor within any attainable distance, no one else would have the hardihood to attempt to put in stitches or sutures. The edges of a wound cannot be stitched together except with surgical needles specially made for the purpose; therefore, since no one is likely to have surgical needles by them on such an emergency, I will say nothing of the process, but will describe another simple method that might be adopted by anyone with a steady hand and good nerve in a case of *absolute* necessity. Take an ordinary sewing needle of moderate strength, cap the eye end of it with a little sealing-wax head—enter its point about one-sixth of an inch from one edge of the cut—pass it through and across the cut—and bring it out through the skin of the other lip a sixth of an inch from its edge. There let it remain, transfixing and bringing together the edges of the cut and projecting equally on each side. Before you go any farther, see that the lips of the wound are brought well and evenly together. Take a thread of stout silk and wind it in the form of a figure 8 several times under the ends of the needle, and when enough turns have been taken to hold the lips of the cut together, tie the two ends of the silk firmly together. Then cut off the sharp point of the needle with stout scissors, or put a little sealing-wax head on that also, and place a bit of sticking-plaster on the skin under

* Plaster should always be cut *lengthways* of the piece, and not crossways. It usually "gives" if cut in the latter manner.

each end of the needle. When complete, the suture will present the appearance shown in the annexed figure. Put in as many of these

sutures as the size of the cut requires. One to every half or three-quarters of an inch is usually about the thing. In order to exclude the air—so necessary to the rapid healing of cuts and wounds—cover the intervening spaces of the cut with strips of plaster or with a film of collodion (see below). As soon as ever union is obtained, the silk threads should be cut and the needles drawn gently and carefully out, the wax head on the point, if there is one, having first been taken off. A little strip of plaster or a bit of wet lint will be all that is then needed.

The necessity of the entire exclusion of air, when we want a cut to heal by "the first intention" must be borne in mind. To this end, amongst others, we cover it with plaster or wet lint, as the case may be. But we possess a valuable agent in *Collodion*, a liquid largely used by photographers. If the edges of a cut that does not gape much are held together, whilst collodion is painted over them and over a little of the surrounding skin also, with a brush; and if they are so held for a few seconds, until the liquid is dry, it will be found that a firm horny film is formed, which holds them in position by itself and effectually keeps out the air. The same end is attained by tying, or otherwise fixing, a small piece of lint soaked in collodion across the cut. In the same manner collodion may be applied as a sort of air-tight varnish over the strips of plaster dressing a wound, or over the spaces of a cut intervening between sutures, or over almost any small wound, provided it is done soon after the infliction of the injury, but not till the

bleeding has entirely ceased. The only drawback to its use is the rather sharp smarting that its application causes for two or three seconds.

But perhaps, after all, the wound or cut will not heal by "the first intention;" it shows no signs of uniting, and begins to look rather angry and to pour out either matter or a watery, yellowish-red fluid; or the edges of the wound may become red, swollen, and puffy, even though there is no discharge. What is to be done? Remove whatever dressings, plasters, or sutures may have been applied, wash it out with warm water, and apply either soft and warm linseed poultices or large pads of lint kept soaked in hot water and covered with oil-silk, for a few hours. Then keep applied to it cold-water dressings, by which is meant linen rag or lint kept constantly wet with cold water. If the wound seems inflamed, some evaporating lotion (such as Prescr. 7) may be used instead of the cold water. In some cases, after all inflammation has subsided, the edges may once more be brought together by a strip or two of plaster, while a pad of cold-water dressing still lies upon them, above the plaster.

Deep wounds of the palm of the hand are often dangerous from the great difficulty experienced in stopping the bleeding. No one but a surgeon can deal with them, but pending his arrival the lower part of the arm should be bent as much as possible upon the upper, and bound firmly in this position. This will have some effect in checking the bleeding.

Torn or Crushed Wounds are usually more serious than clean cuts, and are always more difficult to deal with. They do not bleed so freely, but they nearly always inflame, and the inflammation may go on even to a limited mortification, or *sloughing*, of the wound. The fact of a wound being inflamed is rendered evident by the swelled, hot, dry and glazy appearance it presents, and by the heavy, throbbing

pain felt in it. If by chance the inflammation goes on to *sloughing*, the pain and swelling will usually greatly diminish, the wound will begin to assume a dark and livid hue, to pour out a thin, brownish fluid, and to smell very offensively. The usual progress of such a case is for the dead portions of tissue then gradually to come away, after which the wound slowly fills up and heals.

Treatment.—(See Note on p. 257.) Crushed and torn wounds are of such endless diversity, that only some very general and makeshift advice can be offered to those unfortunate ones who can get no surgeon to attend to their injured child. Cleanse the wound thoroughly with warm water of any foreign matter that may have got into it; keep it dressed with a thick pad of cold-water dressing, using a cold lotion (Prescr. 7) in preference to cold water if the inflammation rises high, and maintain the dressing in position by a light but firmly applied bandage. Keep the part or limb, in which the wound occurs, at complete rest; if the wound is at all a serious one, bathe or syringe it once or twice a day with water, to which a little Condy's fluid or carbolic acid has been added. This must be done oftener, if it begins to smell unhealthy. If sloughing *should* come on, abandon the dressings and take to a constant succession of large, hot linseed poultices with a little carbolic acid or Condy's fluid mixed with the water with which each is made.* When the wound is once again healthy and free from sloughs (which will have worked their way out of it), return to the water-dressing-and-bandage treatment. During sloughing the strength should be well supported by stimulants and a generous diet.

Punctured Wounds.—It is very seldom that these will heal by "the first intention." Complete rest of the part, dressings of lint, kept constantly wet with cold water, or (in case of much inflammation) cold lotion (Prescr. 7), and support by a bandage applied with moderate firmness, give the best chances of a favourable healing. If the wound, or wounds, begin to pour out matter, use hot linseed poultices, instead of the cold dressings.

Grazes of the Skin, or places whence pieces of skin

* Or mix powdered charcoal with the linseed meal, in the proportion of one of the former to eight of the latter.—H. S.

have been chipped off, are best treated, if seen very shortly after the injury, by just once brushing the surface over with collodion or friar's balsam. Either of these protect the surface from the air, the former by a hard film, and the latter by a scab, under which the skin soon forms again. These remedies are rather too sharp, however, for an infant. If the graze has not been seen till it has been done some time, or if it occurs in the case of an infant, it may be kept dressed with a piece of lint, spread with oxide of zinc ointment, which must be changed daily till it heals.

Section III.—On the Stopping of Bleeding.

If, as the result of some accident, a child bleeds rather freely, alarm, excitement, and confusion usually reign supreme in the house, until the flow is staunched. This may be natural, but the alarm is generally groundless, and the excitement is mischievous and obstructive of good management. Of course with such tender and fragile beings as infants and young children, it is essential that bleeding should be speedily stopped; but still the mother may take courage and comfort from the assurance that by following closely the advice about to be given, she herself may always succeed, on an emergency *and if no surgeon is at hand*, in stopping almost any bleeding that is not caused by the wound of *an artery;* and even this she may often control, until assistance arrives. If an artery is wounded, it is known by the blood spouting up in the air in successive jets of bright crimson, a jet for every beat of the heart.

The Remedies at our Disposal are:—(1) *Cold*, either in the form of ice, cold water, or a free exposure to the air; (2) *Styptics*, or drugs whose application coagulate and staunch flowing blood, such as the strong acid tincture of iron; (3) *Pressure*, either in the form of pads and bandages, or of the finger pressed firmly on the bleeding point; (4)

Ligature of the part injured—if it be the arm or leg, finger or toe—nearer to the body than the injury.

And (5) *the red-hot iron*, which is a remedial agent of so painful and frightful a character to the mother's mind, that nothing but the direst necessity would ever give her heart and courage to use it.

Of course many other methods are at the command of surgeons.

What to Do.—The first thing to do is to nerve yourself to steadiness and self-control, and as far as possible to dismiss all alarm as to the amount or continuance of the bleeding. It is surprising how much show and mess a little blood will make. If the bleeding is rather free, do not attempt to stop it by covering it up with rags and handkerchiefs—this is worse than useless,—but expose it freely to the air, and let a stream of cold water (the colder the better) pour over it for a time. This course, if persevered in for a time, will nearly always moderate or altogether stop the bleeding. But supposing that it only moderates it, or entirely fails to abate it, what then? Make a thick, hard pad of dry lint or linen rag, not much larger than the wound, place it upon the bleeding orifice, and bind it *tightly* on with a few turns of calico bandage. If this stanches the blood, as it generally will, do not remove it for several hours, and when you do, *soak it off* very carefully in tepid or warmish water. If the bleeding continues to go on uncontrolled, in spite of the pad and bandage, take them off again; wash the wound clean with cold water; make another similar pad, but this time steep it in the strong acid tincture of iron (called by druggists *Liquor Ferri Perchloridi*), if available; if not, in creosote, or in turpentine, or in a strong solution of tannin in water; wipe the wound dry and apply the pad, binding it tightly on, as before, with a bandage.*

* A good plan of stopping bleeding, is to place a cobweb over the

If an Artery is Wounded, the jet of bright blood spouting out with each pulsation of the heart, as above described, is seen; and it is never seen unless an artery *is* wounded. This is a most serious accident, and can only be treated by a surgeon, who must be sent for with all speed. Meanwhile, if nothing is done, the child may bleed to death. Binding up the wound with a pad and bandage is utterly useless, so are all styptics. Cold may do us a good turn; therefore let the wound remain exposed to the air. If the point from which the blood spouts can be seen, simply place the finger firmly upon it and keep it there unfalteringly until assistance arrives. Bleeding from a small artery can thus be held in check for any length of time by a sensible person of ordinary nerve; but if the bleeding is from a larger artery (evidenced by large jets of blood), or if no one at hand is possessed of sufficient sense or nerve, a strong silk handkerchief must be tied so tightly round the injured limb somewhere between the injury and the body, as to stop the circulation. If the handkerchief cannot be tied tightly enough, insert a strong, smooth, round stick between the handkerchief and the skin, and twist it round until it screws the bandage sufficiently tight to prevent the flow of blood. If ice can be obtained, place some upon the wound; it will tend materially to check the bleeding.

As a last resource, if the case seems desperate and surgical aid is far off, a touch with a red-hot iron (the heater of an Italian iron, for instance) on the cut end of the bleeding artery will nearly always stop the bleeding for a considerable time. The iron should be of a *dull* rather than a bright red heat. It causes much less pain than might be supposed.

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wound; the blood coagulates in its meshes, and thus an air-tight covering is formed, which promotes the union of the wound. The web should not be removed for some days. Unravelled lint answers the same purpose.—T. P.

CHAPTER II.

EFFECTS OF HEAT AND COLD.

SECTION I.—BURNS AND SCALDS.

The Constitutional Effects of a burn or scald are severe, mild, or altogether absent, according to the extent of injury done to the surface. They are always more marked in children than adults. After a burn or scald of any severity, we find the child with pallid and almost shrunken features, with cold hands and feet, and a quick and feeble pulse. There is violent and continued shivering, and the poor little creature seems as if he could not be got warm. The pain is always very severe; it is most distressing to witness the sufferings and hear the cries of agony of a child thus injured.

Prospects of the Case.—The danger of a burn is in proportion to its extent, not to the depth to which it has penetrated. Burns and scalds, if of any size, are always dangerous to children. They are much more dangerous, if they occur on the trunk of the body, or on the head or face, than if situated on the arms and legs. Though extreme severity of pain is dangerous, from the nervous exhaustion produced by it, want of pain and indifference or stupor is more dangerous still, and usually betokens approaching insensibility and death. The most dangerous *period* is the first week after the injury. The

dangers of severe burns or scalds are further incr
by the serious diseases that may result from the injury
to the surface. A child may escape the perils immedi
consequent on the accident, only to perish in the sec
week after it, of inflammation within the head, chest,
abdomen.

There is another fatal accident consequent on a bad burn or scald
the body, that sometimes happens; on or about the tenth day, an ul
of the smaller bowel may form, that quickly eats right through
Extensive inflammation within the belly ensues, and speedy death
Probably the only signs of the presence of the ulcer will be pain an
tenderness on pressure on the right side of the belly, just below the rib
and vomiting.

Management.—(See Note on p. 257). In the absence of a surgeon, or if his attendance is likely to be delayed, there are two things to be done, viz.:—(1) To support the child's system and rally his nervous energy under the shock of the accident; and (2) To dress the injured surface.

To promote the first object, give some hot brandy and water, or wine and water of a strength proportioned to the age of the child, and cautiously repeat the dose from time to time, until warmth begins to return and the features to lose their pinched and pallid appearance. Put a hot water-bottle to his feet and another on each side of his chest, and cover him warmly with a rug or blankets or shawls. Do not begin to attend to the burn until he has to some extent recovered from the first shock of the accident. If the burn or scald is severe, move and handle the child with the utmost gentleness, and do not attempt to undress him in the ordinary way, but cut his clothes off him piecemeal; removing the portions with the greatest care, lest the blisters, which the injury has caused, should be torn, and the child's sufferings and danger thereby increased. The greatest care should be taken not to injure the blisters that

nave risen. The skin should on no account be torn or removed, and the utmost that is ever allowable is to prick them carefully with a fine needle. When all the clothes are removed, lay him on a warm blanket, and (if possible) within a moderate distance of a good fire. Then (and your movements must be *brisk*, now that he is uncovered) cover the whole surface of the burn, of whatever extent, *thickly and evenly* with flour by means of an ordinary dredging box: next, lay on sheets of soft cotton-wool, used unsparingly, and kept in position by a silk handkerchief or a calico bandage. Put a hot water bottle to the child's feet; put on no night-gown, but wrap him tenderly in a thin blanket or woollen shawl, and cover him warmly. Then give him hot beef-tea or bread and milk; and if he is much prostrated, a little more hot wine and water. If there is any discharge from the wounded surface (as there nearly always is) it forms a crust with the flour, and affords a temporary protection to the burn. The dressing now put on must not be changed, until we are warned by considerable oozing forth of discharge, by offensive smell or by increased pain, that it is necessary. *The less often a burn is dressed, the better:* every fresh dressing means fresh exposure to the air, and exposure to the air is mischievous. When the burn is dressed, remove the old dressings with the greatest care and gentleness, so as not to tear the skin of the injured surface. But before you remove the old dressings, have the new ones ready to put on. Cut three or four pieces of lint of a size and shape that will amply cover the burn, soak each of them in carron oil,* or spread them *thickly* with either calamine cerate (Prescr. 16) or oxide of zinc ointment, and apply the pieces over the wound in layers;

* This is so called from being in use at the Carron Iron Works. It is composed of equal parts of linseed-oil and lime water, mixed and shaken together.

cover them as before with a sheet of clean cotton-wool, and keep the whole dressing in position with a bandage. In short, take every means to secure a soft, soothing application, and *to exclude the air*. There is not usually any occasion to change the character of the dressing, until the healing of the wound is well advanced, when cold water dressing or lint soaked in lead lotion (Prescr. 7) may be substituted for the dressings first used; but with the same precaution of careful exclusion of the air. The dressing of the burn is nearly always the cause of severe pain. During recovery, the diet must not be by any means a full one, consisting of only very plain and unstimulating food. Stimulants are only to be given during the collapse immediately following the accident. If necessary, the bowels must be kept acting regularly and efficiently by an occasional dose of castor-oil, jalap, or Gregory's powder (see pp. 161—163). Slight cases are to be managed on the same principles and in the same manner as severe ones, except that the application of flour may be omitted in a slight case.

If a burn or scald is situated on or near the inside of the bend of any joint, it often happens that as it heals, considerable contraction and stiffening of that joint occurs, unless care is taken to prevent it. When the healing of the wound is well advanced, bandage the limb, finger, or toe to a padded splint placed at the back of the joint, and keep it thus extended and straight, until the skin is perfectly formed.

Mortality.—In the year 1870, in England, 1063 children under fifteen years of age met their death by burns, and 637 by scalds; while 37 children under five years of age perished from drinking hot or boiling water.

Section II.—Sun-Stroke.

This condition is caused, as every one knows, by the exposure of the head to the direct rays of the sun. It is

not by any means unknown amongst children, and usually results from the carelessness of the nursemaid, who leaves her charge tied into the perambulator in the full blaze of a vertical midsummer sun, while she takes her pleasure elsewhere. The Apocrypha relates a case of it. "And Manasses was her husband, of her tribe and kindred, who died in the barley harvest. For as he stood overseeing them that bound sheaves in the field, *the heat came upon his head*, and he fell on his bed, and died in the city of Bethulia." (Judith viii. 2.) The effect of the rays of the sun upon the head seems to be that of *a shock* to the brain—similar to concussion of the brain, or any other violent injury. There is no warning: the child becomes suddenly insensible, pallid, and pulseless, and in too many cases, quickly dies.

Treatment.—The natives as well as the army surgeons of India pour cold water over the head and administer stimulants (when the patient can swallow them) in preference to all other remedies. Possibly the ice-bladder applied to the head might act more speedily than the cold effusion, the remainder of the body being kept warm: the child should be removed to a cool, dark, and quiet room;—attempts should not be made to administer brandy and water, or wine and water,—even though weak,—unless by previous trial with a teaspoonful of water or milk, it has been ascertained that the child *can* swallow. Nothing more can be done in the absence of a surgeon.

Section III.—Chilblains.

These consist of a low form of inflammation of the skin, occurring in patches on the hands and feet of children of feeble vitality and weak circulation. They are caused by stagnation of the circulation of blood in the parts of the body most distant from the heart, as a result of cold, or

by sudden alternations of temperature, such as warming the hands and feet at the fire, when they are cold or damp. A chilblain *may* pass through three degrees:—(1st.) The skin is red and swollen in patches, with great irritation and tingling, and perhaps some degree of pain. This is an ordinary chilblain. (2nd.) The skin is blistered and of a dusky purplish hue around; the irritation is less, but not the pain. This is a chilblain that is going to break. (3rd.) The blistered surface is broken, and an unwholesome looking ulcer is seen. This is a "broken chilblain." According as the constitution or health of the child is good or bad, and according as he is well or ill cared for, wil the chilblain stop at the first stage or go on to the second and third.

Management.—Let the water used for washing be merely *tepid*, and not warm. Very cold water is as bad as hot. Always after washing, use brisk friction with a soft towel. Do not allow the children thus afflicted, or *likely* to be afflicted, to toast their chilly hands and feet before a fire, when they come in from the cold. When they go out, their hands should be protected by warm woollen gloves, and with mittens covering their wrists; the feet should be cased in thick lambs'-wool stockings and strong boots of soft leather, having cork soles, covered with wool, within them. Encourage daily *active* exercise. Most cases of bad chilblains require a rather generous diet, and some are benefited by cod-liver oil. Friction, with some stimulating embrocation, such as Prescr. 62, "hartshorn and oil," or turpentine liniment, is to be practised, morning and evening, or oftener, as long as the chilblains continue in the first stage.* When they are in the second stage, take great care not to break the blisters; dress with

* I have found the painting of chilblains with tincture of iodine an excellent remedy in the first stage.—T. P.

oxide of zinc ointment on lint, and wrap them round with cotton-wool or flannel. In the third, or "broken" stage, they may have an *occasional* bread or linseed poultice applied; but as a rule, they will require dressing twice daily with some stimulating ointment, such as resin ointment, either by itself, or diluted by mixing it with more or less fresh lard or oxide of zinc ointment. Mild preparations of iron and small doses of quinine (see pp. 173—175) are often beneficial to those suffering from bad "broken" chilblains.

CHAPTER III.

ON THE RECOVERY OF THE DROWNED.

SOME general knowledge of the course to be pursued in cases of this kind should be in the possession of every one. Life may be recovered in many instances, even when the body has been submersed for some minutes. According to the officers of the Royal Humane Society, *four or five minutes of submersion is the limit*, outside which very few recoveries take place. I have myself been able in more than one instance to restore animation after a longer submersion than this, and many authentic cases of a similar kind are on record, amongst which are noteworthy, one by Dr. Douglas, of Havre,* in which the individual was not only under water, but stuck in the mud at the bottom of the harbour for fourteen minutes, and also one by Mr. Weeks, in which the submersion, on the testimony of most reliable witnesses, exceeded half an hour. These, however, are the exceptions: the rule is as I have stated it.

Management.—(1st) Turn the body on the face for a second or two, to allow water to run out of the mouth; then lay it down on a blanket, on the back, with the head and shoulders a little raised. (2nd) With two fingers passed to the back of it, draw the tongue well forwards, and wipe out the mouth. (3rd) Very quickly strip off all the wet clothes, and commence to rub the whole body dry,—if possible with hot flannels or towels,—

* *Medical Gazette*, December 23rd, 1846.

setting others also to work to help in doing the same. (4th) Make an attempt to excite coughing or sneezing by tickling the back of the throat with a feather or paintbrush dipped in brandy, and by applying strong smelling-salts to the nose. Do not meantime cease the rubbing of the body with hot flannels. (5th) If this does not succeed,—and it often does not,—put a hot water-bottle (or a hot brick, wrapped in flannel) between the thighs and another on each side of the body, and lose no time in proceeding to make use of *Artificial Respiration*.* Thus:—the body is lying on its back in the position above described, the tongue is brought forward and kept in that position by a strong elastic band passed over it and under the chin; both arms are then to be grasped just above the elbows, and to be drawn gradually upwards, till they extend straight, and meet above the head: let them remain in this position for a second or two. This movement imitates and causes the act of inspiration. They are then to be brought down, still holding them just above the elbows, and to be firmly pressed against the sides of the chest for another second or two. This movement imitates and causes the act of expiration. These movements are to be gone through regularly and unceasingly about fifteen times in a minute, until natural efforts to breathe are induced,—and it is often a long time before these happy results are witnessed,—when they are to be stopped, and other necessary measures put in force. The resuscitated child is to be wrapped warmly in a blanket, and put to bed: a little weak port wine negus may be given, and absolute rest must for a time be enjoined.

Dangers subsequent to Recovery.—If the child, when apparently recovered, is allowed to get up, dress, and walk about, there is a strong probability that symptoms

* Other methods besides the one here given will be found described on p. 218.

of threatened suffocation will soon return. Difficulty of breathing, stupor, dilation of the pupils of the eye, and perhaps even convulsions, will bear evidence to the fact that the action of the heart and lungs, so recently restored, has become again embarrassed. A very slight amount of exertion or excitement undergone soon after resuscitation, is sufficient to induce these alarming symptoms; but I have more than once known them to occur, when the patient has been kept at perfect rest. A knowledge that they may occur, serves, however, to put us on our guard as to after-treatment. The only remedy for this condition of things is again to have recourse to artificial respiration.

Treatment of Minor Cases.—There are a large number of cases in which children (or adults) have fallen into the water, but are so speedily rescued, that they have not been *submersed* at all, or if so, only for a few seconds. On being picked out, however, they are often insensible, and seem to need resuscitation. This condition, however, is the result of *shock to the system* from fright or the suddenness or coldness of the plunge, rather than from suspended animation. It must be treated as a shock, and not by the use of Artificial Respiration, which is altogether needless, as the heart and lungs are perceptibly working. Strip off the wet clothes; apply strong smelling salts to the nose; get ready a hot bath with *plenty* of water; put the patient in it, and while sitting in it well covered with hot water, *dash* some cold water over the face; and rub and shampoo the body and limbs. After the bath, administer some gentle stimulant, and briskly rub him dry with hot towels. Subsequent treatment, as after recovery from drowning.

CHAPTER IV.

ON STINGS AND BITES.

The Stings of Insects.—Though usually trifling in this country, these may be, and sometimes are, attended by much suffering and even serious results.* Children are peculiarly sensitive to injuries of this kind, and if much stung by bees or wasps, often suffer severely for a time from headache, vomiting, and fever. If a bee or wasp gets into the mouth, as it may do, when concealed in fruit, and stings the back of the throat, alarming symptoms of suffocation are produced.

Treatment.—Carefully extract the stings, if they are left in the skin. Then apply spirit of hartshorn (or strong solution of ammonia) diluted with twice as much water, or "sal-volatile," or eau-de-cologne. If the part is left puffy and swelled after the tingling has abated, rub it with soap liniment.

For a bee or wasp sting at the back of the throat, use a gargle of hot salt-and-water (Dr. Druitt), if the child is old enough to manage it; and if the symptoms are alarming and if no surgeon is within call, a parent would be warranted in applying two leeches on each side of the throat, if the creatures could be procured. If not, a sharp mustard poultice, or very hot fomentations over the front and sides of the upper part of the throat might be tried; but without a surgeon's assistance the chances of the child's recovery would be but slender.

* Mr. Lawrence relates the case of a Frenchman, who was so smartly stung by bees about the upper part of the chest, that he died in a quarter of an hour with symptoms as severe as those produced by the bites of deadly serpents. (*Medical Gazette*, vol. i. p. 582.)

Snake Bites.—There is only one venomous snake in this country, namely, the viper, and it is much to be doubted if it is capable of killing an adult human being.

Treatment.—If the bite has been inflicted by a snake or serpent that is not venomous, treat it as an ordinary punctured wound (see p. 511);* but if by a poisonous one, other measures must be tried, though too often they are unavailing. The *free and fearless* use of stimulants to support the strength,—the *instant* sucking of the wound,†—the tying of a ligature *tightly* round the limb between the wound and the heart, the free cauterisation of each tooth-mark by inserting a thick red-hot wire into it, taking care to destroy too much rather than too little:—these I consider to be the only remedies worth a trial.

Bites of Animals.—The bite of an animal, though nearly always troublesome to heal, derives additional seriousness from the fear that the creature that inflicted it may have been mad, and, consequently, that the terrible disease, hydrophobia, may result therefrom. The only animals that appear capable of becoming *mad*, as it is called, and of communicating the disease to man, are the dog, the wolf, the fox, the jackal, and the cat. Out of the whole number of collected instances of persons who have been bitten by undoubtedly rabid animals, it appears that not half have suffered from hydrophobia. Bites are much more dangerous, when inflicted on a naked part than through clothing; in the latter case the poison is wiped off the teeth in their passage through the dress. When a child has been bitten by an animal, unless it is manifestly mad and dangerous to others, it should on no account be killed, as it too often is;

* I was recently called up in the night to attend to a gentleman who had been bitten through the hand by a large python that he kept at home. It was with difficulty that I could persuade him that neither excision with the knife, nor red-hot irons nor caustics were necessary, since the creature that had wounded him was not venomous.

† No risk is run by the person who sucks the wound, the venom is harmless in the mouth; but it is just as well to rinse out the mouth with brandy both before and after the suction.

and for this reason. If it is hastily killed, it is usually impossible afterwards to determine whether it was mad or not; the friends of the patient in their anxiety are very apt to imagine the worst and believe that it was, and are consequently in a wretched state of suspense for weeks, and perhaps months. Whereas, if the animal is preserved, it is soon apparent whether it is really mad or not; and in a very large majority of cases, it will be found that it is *not*, and all anxiety and apprehension is thus saved.

Between the bite and the appearance of the disease, the interval is very variable; but for the most part it may be stated as lying between six weeks and eighteen months.*

Treatment.—(See Note on p. 257.) The treatment of the bite of an animal, to whom no suspicion of madness attaches, is the same as that of an ordinary punctured or contused wound (see pp. 510 and 511). Immediately after the bite of a rabid animal, or of one that is justly suspected to be so, the following steps must be taken.—(1.) Let the wound be well sucked. (2.) If it occurs in a part that *can* be cut out, it *should* be cut out: no half measures are of any value. Of course the surgeon will do this in the way he thinks best, while the child is under the influence of chloroform. Free excision is much to be preferred to caustics. (3.) If a surgeon can only be reached after the lapse of some time, an attempt should meanwhile be made to destroy the wound with caustic. If the services of a surgeon are not to be had at all, the same course must be pursued. Only the strongest caustics are of any use, namely, nitrate of silver (or lunar caustic), caustic potash, and the red-hot wire. Mr. Youatt, the celebrated veterinary professor, who has been bitten several times, and

* In one case that came under my own care, the interval was only four days. It occurred in a woman of about thirty-two, who was bitten through the lip by a dog.

has always escaped by the use of nitrate of silver, recommends it above all others. If the wound is large enough to admit *a stick* of caustic sharpened to a point, this should be pushed into it, and *every* point should be *freely* rubbed over with it. Recollect that it is much better to destroy too much than not enough. If the wound is not large enough to allow of this, powder the nitrate of silver or the caustic potash very finely, and cram each tooth-wound *full* of the powder of one of them. Let it remain in for a minute or two; then wash it out with water. But caustics are not always at hand. If they are not, heat a stout iron wire red-hot at one end; deliberately push it into each wound made by the animal's teeth, and work it round and round, until every portion of the interior is charred by it. The inflammation and swelling caused by the use of the foregoing means are best allayed by hot fomentations and linseed and bread poultices.

It is useless to speak of the treatment of hydrophobia, since there is not on record one undoubted case of it that has recovered.

CHAPTER V.

ON SPRAINS.

WHEN a joint receives a wrench or violent twist, so that the ligaments binding the bones together are stretched or partly torn through, without the bones being put out of joint, it is said to be *sprained.* Sprains are not at all common in young children, and when they occur in more advanced childhood, are usually in either the wrist or ankle.

Symptoms.—The pain attending the accident is severe and of a sickening kind; and a dull, heavy, and often throbbing pain, which is hard to be borne by the little patient, generally continues for some time. There is extreme tenderness and immovability (from pain) of the joint, and swelling and inflammation of the part affected soon set in. After a time the limb very often becomes extensively purple, just as if it had been severely bruised: and so it has, internally. When the inflammation has subsided, stiffness and pain in using the joint continues for a long time. A bad sprain will generally cripple the limb for as long a time as a broken bone. Sprains, occurring to strumous children, should never be disregarded or treated lightly. They are often the commencement of very serious mischief.

Treatment.—A slight sprain will usually require nothing more than frequent rubbing with a stimulating liniment (such as Prescr. 46 or 62, or turpentine liniment, or "hartshorn and oil"), until the worst of the pain and tenderness has subsided; when a calico bandage or a few

broad strips of soap plaster should be firmly applied around the joint to give it support. Severer cases require the daily attendance of the surgeon, but if this cannot be had, the following measures may be adopted.*

If there is much heat and swelling, keep the part enveloped in cloths kept constantly wetted, either with cold water, iced water, spirit and water, or a cold lotion like Prescr. 7; the cloths must be changed as soon as they get warm or dry. When the heat and swelling are well reduced by these means, the joint should be supported by either a calico bandage, or a series of strips of soap plaster firmly applied around it, and above and below it; or better still, by an ordinary bandage soaked in starch and applied while moist. The skin should first be covered with a few turns of dry, unstarched bandage, then the starched bandage must be applied very evenly and smoothly, or else its rucks, when hard and set, will hurt the child. When it dries, it sets into a hard and immovable case for the joint. In later stages of the sprain, when pain and stiffness still remain, as they often do, the joint should be well douched with cold water twice a day (held under a tap, for instance), and afterwards rubbed with one of the above-named embrocations.

* A very good way of relieving *the pain* of a sprain is to plunge the limb into hot water,—as hot as can be conveniently borne. It relaxes the blood-vessels and wonderfully subdues the pain. Ballet girls, when they sprain their ankles in dancing, always do this. This does not supersede the necessity of adopting, sooner or later, the treatment recommended above.—T. P.

CHAPTER VI.

INJURIES OF THE HEAD.

It is a matter of notoriety among, surgeons that children (I do not say *infants*) will endure violent injuries to the head without permanent ill results, such as would be fraught with the gravest danger to an adult. When we consider what frequent blows and falls on the head, their restlessness, weakness, and inexperience bring them into the way of, we see how merciful a provision of Nature this is.

One or two instances from my own experience may prove interesting. When I was one of the surgical staff of the Poplar Hospital for Accidents, a boy of about nine years old was one day brought in, who had met with a fearful injury of the head. He had fallen with his head against a circular saw in motion. The saw had made a cut through the skull of nearly two inches in length, and by some means had then loosened a piece of bone larger than half-a-crown, which afterwards became detached. The brain had also been freely divided to some depth, and portions of brain protruded through the opening and came away with the discharge for some time. Nevertheless, this boy entirely recovered, "without" (as doctors say) "one bad symptom." A little boy of about six, living in Tavistock Place, W.C., fell from a staircase window between the first and second floors into a back yard paved with stone flags, *on to his head.* I was sent for, and went expecting to find him dead; but I found him very little the worse for his feat; he looked pallid and faint, and I was told he had vomited a little; he had also a contused scalp wound (not severe), but nothing more. I lost sight of him after two years, but during all that time no ill effect of any sort was discoverable. I remember, when a student at St. George's Hospital, seeing a child of three years old sitting up in bed, perfectly well in every respect, who had received such a blow on the forehead that it was completely driven in. Instead of being convex and rounded, it was slightly concave and excavated in appearance. No permanent bad,

results, save the deformity, followed the injury. I could, if there were need, multiply instances of this sort indefinitely.

Concussion of the Brain.—When one is *stunned* by a blow on the head, he is said to be suffering from concussion of the brain; a condition in which its functions are temporarily suspended, or in which life is altogether destroyed by the severity of the shock.

Symptoms.—In slight cases the child may be only giddy and confused for a little while, or faint and weak and unable to stand. In severer cases he is cold, clammy, and pale, and lies motionless and insensible; the limbs are nerveless and limp, and seem to have lost all power, the pulse is feeble, the pupils of the eye contracted, and very often the bowels and bladder are evacuated without his knowledge or control. When the young patient has been in this state for a period varying from a few minutes to a few hours, according to the severity of the shock, he begins to rally, the skin becomes warmer and the pulse fuller, but consciousness does not usually return yet. Soon he vomits, and from this time recovery takes place rapidly. In many cases, however, the injured one never rallies. Concussion, besides terminating in either complete recovery or in death, may also result in partial recovery; the patient is restored, but more or less headache, giddiness, and confusion of mind are left behind, which hang about him for a longer or shorter time, according to circumstances. Or, again, the young patient may remain in a semi-unconscious state, taking no notice of what is going on around him, but constantly changing his position and tossing himself about; and this without any heat of the head or other symptoms of inflammation. This is a most serious condition, and a medical man should be at once consulted.

Treatment.—If the attendance of a surgeon cannot be obtained, carry out the following advice. What we want to do, is to revive the

depressed condition of the heart and nervous system. Strip off the child's outer clothing, wrap him warmly in blankets, steadily rub such parts of the body as are readily accessible, either with warm hands or with turpentine or brandy; place hot bottles on each side of him and between his legs and to his feet, and as soon as he is able to swallow, give him some hot milk or tea to drink. Do not give any stimulants, unless the prostration is so great that nothing else will rally the child: they only increase the danger of inflammation of the brain following the concussion. Indeed, this tendency to inflammation is always so marked, that as soon as the child is thoroughly restored, we must guard against it by precautionary measures. Keep the bowels acting freely for two or three days, by means of some simple but effectual laxative (see p. 161 and Prescriptions 18, 32, 40, or 61), let the child remain quiet in the house, having complete rest of mind and body, and living upon a low diet. The occurrence of any heat of head or brain symptoms may be met by the application of the ice bladder (see p. 185).

Wounds of the Scalp.—These are of not at all uncommon occurrence amongst children. Their locality renders them of rather more serious import than wounds elsewhere, from the tendency to inflammatory mischief *within* the head that they appear, when severe, to occasion. Scalp wounds of children are very seldom, indeed, followed by erysipelas; this malady supervenes only in unhealthy and broken-down constitutions.

Treatment.—If it is an ordinary cut, no matter how deep, shave a small portion of the head immediately surrounding it, sponge it to clear it of all blood or dirt, and when bleeding has ceased, bring its edges together with two or three strips of plaster in the manner described, when speaking of incised wounds (p. 507). If the injury be more extensive, it may be necessary to bring the edges together by pins in the way detailed on p. 508, taking care not to pass the pin through the whole thickness of the scalp. If there is any heat, pain, or throbbing in the wound, apply a light pad of linen or lint, kept soaked in cold water, in spirit and water, or in some cold evaporating lotion (such as Prescr. 7), upon the plaster or above the pins, and keep it in position by a handkerchief over the head and tied under the chin.

CHAPTER VII.

ACCIDENTS WITH FOREIGN SUBSTANCES.

Section I.—Swallowing Foreign Substances.

Cases of children who are alleged to have swallowed some object that they have picked up, or that has been given to them to play with, are innumerable. It is impossible for a mother to mention to her friends the fact of her child having swallowed any foreign substance, without each one of them capping her narrative by one more wonderful still. Many of these alleged cases of swallowing are genuine, but more of them are, in my experience, false alarms or mistakes. The objects most commonly swallowed are small coins, buttons, thimbles, pins, *et hoc genus omne.* Sometimes in these cases we find that the object, whatever it is, sticks in the back of the throat; sometimes it sticks half way down the gullet, especially if it is of a rough or pointed character; but most frequently it goes right down into the stomach.

What to do.—If the substance has stuck at the back of the throat, the child will exhibit signs of obvious alarm and distress, and will probably have fits of suffocative cough, which sometimes, but not always, dislodge and expel it. Place the child with his face to a good light; coax him to open his mouth; then slip a piece of wood, cork, or india-rubber, between the back teeth on one side, to keep the jaws open; then looking in, you will probably

see the substance you are in search of, and can remove it with the point of the forefinger; if it is a small pointed object, like a pin or a fish-bone, you may very likely have *to feel* for it, and when found, to gradually work it up into such a position, that it can be seen and extracted either by the fingers or a pair of *forceps* (or tweezers). Making the child sick by passing the finger well down the throat will often dislodge a small object, if the above method fails. If the substance has lodged in any portion of the gullet,* and if the swallowing of some half-masticated bread does not force it down, no relief can be given to the child except by a surgeon. If the substance has passed on into the stomach, two courses are open to us: we may attempt its expulsion by exciting vomiting, or we may leave it to pass through the bowels in the ordinary course of Nature. Rounded hard substances, like small coins, buttons, stones of fruit, or pebbles, *if very recently swallowed*, may often be safely removed by an emetic (see p. 169), especially if the stomach is partially full at the time; but if it has *not* been very recently swallowed, or if it is *not* a smooth and rounded object, it should be left alone and allowed to pass on through the bowels. In this case it is much better not to give any purgative medicine, but rather to feed the child on a diet of a rather constipating kind, so that the offending body may become enveloped in a mass of firm excrement, and thus be safely voided.

"The swindler in the streets of London, in the habit of passing false coin, when detected in the act, will invariably attempt to swallow the piece of money intended to be passed, and will generally succeed in the attempt, even if it be of the size of half-a-crown. No evil effects occur in such instances. The treatment usually pursued by the man in his

* Children very often think that it has lodged in the gullet, from the sensation of distension produced there by its passage, remaining after it has gone down.

own person is peculiar, and not irrational. He avoids purgative medicine as worse than useless. On the other hand, he has recourse to a constipating diet, and feeds for some days on hard-boiled eggs and cheese in excess, beyond his usual diet. His theory is, that the more solid and copious the contents of the bowel, the more sure is the piece of money to be caught in the passing feculent matter, and thus will be most readily propelled outwards to the external outlet. It is believed that aperient medicine delays the expulsion of the coin." (Mr. George Pollock, in Holmes's System of Surgery, vol. ii. p. 467.)

There is very seldom any cause for anxiety or apprehension in these cases.

Section II.—Foreign Substances in the Air Passages.

The most familiar example of this alarming class of accidents, is when a crumb "goes the wrong way," or, in other words, drops into the larynx, instead of finding its way into the gullet.

The larynx is the organ of the voice, and is situated at the upper end of the windpipe, and immediately in front of the beginning of the gullet. It is protected from the passage of food into it as a rule, by a little valve-like organ called the epiglottis, that in the act of swallowing, shuts down over it like a lid, and over which the food glides into the gullet. The air passes from the mouth into the windpipe, and *vice versâ*, through a narrow slit in the larynx (like the chink in a money box); and there is no other passage of communication between them.

Hence it follows that it is extremely seldom that food or any foreign substance passes into the windpipe; it nearly always lodges in the larynx or sticks in the chink of the glottis, causing alarming symptoms of suffocation, that are usually fatal, unless speedily dislodged.

About three years ago I was summoned to see a child, who was said to be evidently dying, if he was not indeed already dead. I went instantly, and found him quite dead. He was a very fine little boy of about four years old. The history given me was this. Five minutes before he

died, he was in perfect health and playing about the room, his mother being present. Something that occurred annoyed him, and he threw up his head to cry, "as children will do." He had no sooner done this, than he gave a long gasp, his face became purple, he struggled a little with his limbs, and, as it seemed to his mother, *in less than two minutes* expired. The only portion of the post-mortem examination made by me, that I need here relate, is this. I found a little piece of toffy in the mouth nearly dissolved away, and pursuing my search further, I found firmly impacted in the chink of the glottis the split half of a fair-sized almond; the other half lay loose, just above the chink. When informed of this, the mother for the first time remembered that she had given him some almond toffy early in the afternoon. It was evident that in the forcible breath drawn, preparatory to crying, the half almond had flown from the mouth and become wedged in the glottis, causing instant suffocation.

What to do.—There is unfortunately very little indeed that can be done. Send instantly for the nearest surgeon, *stating the nature of the case*, that he may come provided with the necessary instruments. Sometimes the child's own coughing dislodges the obstruction; sometimes by passing the finger down the throat and exciting vomiting, it is brought up. If the child is relieved in neither of these ways, take him and turn him upside down for a moment, while a smart slap is given him on his back; this often excites a sudden and forcible expiration, which blows the morsel out into the mouth again. If the child seems in imminent danger of suffocation, nothing but immediate operation by a surgeon will save it. If the mother resists the performance of this operation, she does it at the peril of her child's life.

SECTION III.—FOREIGN SUBSTANCES IN THE NOSE AND EARS.

Foreign Substances in the Nose.—Children appear to have a great fondness for inserting small objects, such as

peas, beads, and bits of slate pencil, in their noses and ears, though the motives that prompt them to the deed are inscrutable.

Symptoms.—It mostly happens that the fact of a child having stuffed anything up its nose, only becomes known some time afterwards by trouble arising in the part. The child has often forgotten having done it, or is afraid to confess it. The mother finds he breathes "stuffily," that one side of his nose is somewhat enlarged or swollen, that perhaps he complains of pain from one nostril, which on examination is seen to be entirely blocked up, while a copious but thin discharge escapes from it. The fact of the swelling and discharge occurring in *one nostril only* will be a guide to the mother as to the nature of the case. A foreign substance, if allowed to remain a long time in the nostrils, may, and often does, give rise to destructive inflammation of the parts around.

"Once a boy was presented to me," says Mr. T. Holmes, "as suffering under disease with exposure of the bones of the nose. On inspection, I thought the exposed bone looked unnaturally white and hard; and on removing the foreign body, I found that it was one of the child's own teeth." ("Surgical Treatment of Diseases of Children," p. 285.)

Management.—Unless the foreign substance is *known* by the mother to have been inserted, and unless it lies *visibly* at the very entrance to the nostril, she must let no effort to extract it be made, except by a surgeon: great injury might be done by the attempts of an inexperienced person. She should take means to have it removed directly she knows of, or suspects, its existence there.

Foreign Substances in the Ear.—The remarks made and the advice given upon Substances in the Nose, apply equally here. The symptoms are much the same, except that, instead of stuffy breathing, there is deafness on one side. The cautions to be observed are also the same.

Sometimes the substance inserted, if it is small, can be extricated by well-directed syringing with warm water * ; if it cannot, or if it is only partially visible, or cannot be got out by the simplest possible means, the case is one for a surgeon. It is better far to leave the substance in, than to injure the ear by unskilful and ignorant efforts to get it out.

Syringing the Ears.—Sometimes accumulations of hardened wax form in one or both ears, causing deafness. It is not, however, for the mother to form an opinion as to whether it is this condition or no that causes her child's deafness. That is the province of the surgeon. But he will often probably recommend syringing of the ears, and it may prove useful, if I give a few hints on the best way of doing this. When the child goes to bed, on the evening preceding the day when the syringing is to be done, drop a few drops of almond or best olive oil into the affected ear or ears, and then insert a little plug of cotton wool. By this means the wax will become softened. Next morning do the syringing. Make some hot soap suds (temperature about 100° Fahr.) in a small basin with a narrow lip, which can be pushed up under the lobe of the ear. Protect the child's neck and shoulder from the water, which may very likely run down them, by towels ; and then, using a syringe, which will hold *at least* 2 ounces (more would be better), direct a steady stream into the ear, holding the lip of the basin firmly against the face to avoid mess. Fill the syringe full, to avoid air bubbles, and do not inject the stream with violence. The syringing will require to be perseveringly continued for at least a quarter of an hour or twenty

* The syringe should have a fine nozzle, and the stream of water should not be directed *straight* inwards, but against the upper wall of the canal of the ear, so that it may get behind the foreign substance and push it out. If the stream be directed *straight* inwards, it will sometimes push the substance further in, and render its extraction even more difficult.

minutes, sometimes even longer; and the water must be changed when it cools. After a time the wax will begin to come away in shreds and pieces. After the syringing is over, dry the ear and insert a plug of cotton wool. The process may have to be repeated more than once, if the accumulation is large.

DIVISION II.

SURGICAL DISEASES.

CHAPTER VIII.

ON ABSCESS AND BOILS.

SECTION I.—ABSCESS.

Definition.—An abscess is a collection of matter (or *pus*) contained in a cavity surrounded by inflamed tissue, which, as a rule, has a tendency "to point," or come to a head, and escape through that surface of the body to which it is nearest. It is always a result of inflammation in the part affected.

Varieties.—There are abscesses of many different kinds; but we have only space here to speak of those commonest among children, namely, Acute or Inflammatory Abscess, and Strumous, Scrofulous, or Cold Abscess.

Causes.—Acute abscesses are caused by a disordered condition of the blood,—often occurring after fevers,—and by inflammation set up by blows, bruises, and other injuries. Strumous abscesses take their origin in the unhealthy condition of the system indicated by their name (see p. 318).

Symptoms.—(1) *Acute Abscess* begins usually with feverishness, severe throbbing pain in the part affected, bright redness, and a good deal of swelling, which is firm in the

centre, and softer, or doughy, all around. When matter forms the symptoms change; if the abscess is of any size, shivering or chills occur, the feverishness abates, and the pain is changed into a sense of weight and tension; the redness becomes less vivid and the swelling gets softer, and by the experienced finger matter can be felt fluctuating under the skin. Then the abscess begins to come to a point, and the skin gets thinner and thinner over some particular spot, until at last, unless previously lanced by the surgeon, it gives way and the matter escapes.

(2) *Strumous Abscesses* usually form in the neck, armpit, or groin, or on the arms and legs. They are first felt under the skin as small, hard, rounded bodies, about as big as a bean or small marble. The skin gradually gets red just over the swelling, but it is not tender to the touch. The abscess enlarges very slowly; indeed its whole progress is slow and unattended by pain or constitutional disturbance. Sometimes the swelling will disappear spontaneously, but more often it goes slowly on to a point, at which it appears as if the skin was just going to give way. But it does not, as a rule, for some time longer, and when at last it does, a thin, curdy, unnatural sort of matter escapes, the cavity collapses, and slowly heals up. Several of these may occur on the same child, simultaneously or consecutively.

Management.—(1) *Acute Abscess.* When an abscess threatens or commences to form, begin to apply a succession of large, soft and hot linseed poultices: these must be continued, until the matter is evacuated, and perhaps for some time afterwards, when they may be succeeded by frequently changed linen compresses, steeped in hot water and covered with oiled silk. "Poultices relax the skin, promote perspiration, soothe pain, encourage the formation of matter, and expedite its progress to the surface." (Dr. Druitt.)

If the surgeon in attendance proposes to lance the

abscess, the mother should on no account offer any objection. Besides many advantages, which cannot be understood by an unprofessional person, that lancing often possesses over allowing the abscess to burst, it always has these;—that the formation of a scar is prevented or the chance of it lessened,—that the abscess is prevented from burrowing about under the skin or amongst the deeper structures,—and that the period of pain, and the duration of the case generally is much shortened. When the matter has escaped from the abscess and the pain has gone, the part should be supported by a bandage.

(2) *Strumous Abscess.*—As a rule these are best let alone. The treatment should be addressed to the condition of the system that has produced the abscess, which is fully described in the chapter on Scrofula (p. 318). When the matter has escaped, apply warm-water dressing for a few hours, and then oxide of zinc ointment spread on lint, until it has healed.

Section II.—Boils.

Nature of the Complaint.—Boils are hard, rounded swellings of a dusky red colour, usually, but not always, attended by acute pain and tenderness. A boil is produced by circumscribed inflammation of the true skin and of the tissue immediately beneath it; the inflammation ultimately proceeds to the formation of matter (or gathering), and the discharge of shreds of dead tissue called the *core.* Boils may either be acute—when they are attended by great pain, swelling, tenderness, and even fever—or they may be chronic, when they are indolent, hard, slow to gather and much less painful. They may come singly or in successive crops.

Symptoms.—A boil begins as a hard, tender spot just beneath the skin, which soon becomes red; gradually a

swelling arises, hard, red, throbbing and very painful. After a short time it acquires a more or less pointed form and its point gets yellow. At last it bursts, and the mother is rejoiced that the child's trials are over. But they are not. A very little matter tinged with blood escapes, and shows a mass of dead tissue—the core—within, larger than the opening just effected. After the lapse of a short time, during which the aperture has become enlarged by ulceration, the core is expelled, leaving a cup-like cavity which soon fills in and heals up.

Causes.—Boils are always symptomatic of blood disorder, and this disorder is sometimes associated with too full-blooded a condition of the body, but more often with a state of debility. I have most frequently seen boils the evident result of insufficient or unwholesome food, or of general depressing influences, or of both conjoined. But they also undoubtedly occur from "surfeit," from imperfectly understood epidemic conditions,—when they are found very prevalent among a large number of the young in one district—during convalescence from fevers, or after a sudden change in the manner of living or habits of life.

Sometimes, but very occasionally, the outcome of a crop of boils is salutary; in such case they act as a safety-valve to the system, discharging morbid matters that might have become a source of disease if retained.

Management and Remedies.—The treatment of boils must be both constitutional and local: first, with the view of removing the cause; and second, to mitigate the effect.

Take measures to improve the general health; regulate the diet, letting it consist of only the simplest and most digestible articles of food, and increasing or diminishing its quantity and nourishing character according as the disorder seems to proceed from a full-blooded or a debilitated condition

of the body. Sugar should be altogether excluded from the diet until the malady has quite gone. Attend to the state of the bowels; in any case if they are confined relieve them (see p. 457—460), and if the boils appear to be the result of surfeit, induce gentle purgation for a day or two; a little salts (as in Prescr. 18), jalap, the compound jalap powder, or the sweet solution of senna (see pp. 162, 163), being as good and safe remedies as any. If the weather permit, let the child be much in the open air; and if the position of the boils on the body should allow it, let him have plenty of exercise. In obstinate cases change of air is often very beneficial.

If the boils appear to be the result of a low condition of the system (and they most often are), iron and quinine are the proper remedies (see pp. 173—175); a useful remedy is also given in Prescr. 52. But if they proceed from an opposite state, they may be met by low diet, purgatives, and some such preparations as Prescr. 19 or 37, and 63.

There is "an old woman's remedy" which I have often found to act most beneficially when boils are coming out in crops, namely ordinary brewer's yeast. I have given it in doses of half a teaspoonful, or more, in a little water, two or three times a day, to children between six and ten years old, in the intervals between meals. Unless much discomfort is occasioned by its use, it should be continued for two or three days.

The management of the boil itself is best conducted thus. Whilst forming, dress it with lint kept wetted with some such lotion as Prescr. 7, used warm: cover the dressing with oiled silk. When it is obviously gathering, apply a series of hot linseed poultices, to each of which a little warm spirit has been added. If the blood is in a very impure state, the poultices sometimes bring out a crop of little heads around the boil. The doctor in attendance will decide whether it is best to allow the boil to burst spontaneously, or to open it by lancing. Sometimes the

former event is most undesirable, and often a little touch with a lancet at the proper time, alleviates the suffering and hastens the expulsion of the core. Never be guilty of the barbarity of squeezing a boil to get out the core, it is a cruel, ignorant, and hurtful proceeding. If a boil is chronic, slow to gather, slower to point, and comparatively painless, a good stimulating application is the "yellow basilicon," or resin ointment, spread on lint. When the core has been expelled, the cup-like cavity left readily heals if covered with a little pad of water dressing, or with a bit of lint smeared with oxide of zinc ointment.

CHAPTER IX.

NÆVUS, OR MOTHER'S MARK.

A brief mention of this subject has been made on p. 231, to which I would refer the reader in order to avoid recapitulation.

Nature of the Disease.—A mother's mark, or nævus, always consists of an aggregation, or cluster, of enlarged blood-vessels. Sometimes it is a bunch of interlacing, distended capillaries—or minute vessels intermediate between arteries and veins; sometimes it is a cluster of small but dilated veins,—or vessels carrying back impure blood to the heart; and sometimes it is a combination of the two. In the former case the mark or swelling is red, in the latter of a purplish hue, or dusky red. In the former case also, if the nævus attains any size, as sometimes it does, pulsation can be felt within it, and the swelling feels firm; in the latter case the swelling is soft and compressible, does not pulsate, becomes distended when the child struggles or cries, and is seldom of a size less than an olive, but often much larger.

A child that is disfigured by a mother's mark is usually born with it. At birth these marks are for the most part of small size, often *very* small, and not bigger than a pea. Sometimes, as time goes on, they waste away and ultimately disappear; but more often they show an active disposition to spread, becoming in a very short time patches or swellings of an inch or two in diameter. I have seen many cases in which they have attained the size of a small orange.

In most instances no further harm results than the disfigurement produced, which is often considerable, as the marks are generally met with in parts of the body exposed to view; but sometimes, and especially if the growth enlarges much, there is a strong tendency to ulceration, resulting in bleeding, dangerous, and difficult to stop.

The popular belief that sees depicted in these marks the likeness of some object that either frightened the mother, or was longed for by her when pregnant, is founded purely upon the efforts of a lively imagination.

The superficial nævus or "port-wine stain" occurring in large patches has been spoken of on p. 231.

What is to be done?—Directly a mother observes any such mark upon her infant, she should of course point it out to her medical man. If he considers it inexpedient to do anything at the time, she should watch it closely, and if it enlarges—which she can ascertain by cutting a piece of paper, plaster, or card the exact size and shape of the nævus, and placing it upon the mark from time to time, to see if it has extended beyond its original boundaries—she should again submit it to surgical inspection. If the nævus is *not growing*, and if it is not a disfigurement by reason of its being situated on an exposed part, it is unnecessary to meddle with it: there is a probability of its disappearing spontaneously.

If the nævus is very small and superficial, it is often a good plan to have it vaccinated at the same time that the child's arm is done. If the vaccination is done by one or two pricks and takes, the nævus becomes obliterated, and on the dropping off of the scab has disappeared.

If the doctor proposes operation, the mother should interpose no objection. If anything is to be done to remove the blemish, it must be by surgical means; medicine avails nothing.

There are many means by which a nævus may be removed, but it is very seldom that the knife is resorted to. The surgeon will choose the best method in accordance with the position, size, and variety of the nævus, and all these methods are quite safe and free from blood shedding, and can be rendered almost painless by the application of ether spray.

The rapid enlargement and swelling of a nævus can often be checked, especially if it lies over a bone, by pressure upon it with a small plate of ivory, bone, or sheet-lead, held firmly in position with strong strips of plaster.

CHAPTER X.

ON SOME DEFORMITIES ABOUT THE FACE AND MOUTH.

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SECTION I.—SQUINTING.

Nature of the Complaint.—The motions of the eye-ball, or the directions in which the eye is turned, are effected and regulated by six distinct muscles. It may happen that the muscles that turn the eye respectively inwards towards the nose and outwards from it are of unequal strength; the strongest of the two will then pull the eye in its own direction. Squinting may also arise from some want of parallelism in the sight of the two eyes, whereby one of them is instinctively turned aside to avoid the disturbed vision that would otherwise result. The commonest form of squinting in children is that in which one eye looks inwards. In some cases it is not always easy to determine which eye it is that squints. The child generally uses the stronger eye only, and the weaker one squints; but when he becomes excited, he will often look straight with the weak eye and squint with the strong one. Close observation, continued for some little time, will however never fail to discover which is the eye at fault.

Causes.—(1) It may be merely the result of the habit of imitation which is so strong in children: some playmate or servant happens to squint; the child imitates it—not altogether maliciously—and presently squints in reality also.

(2) By continually looking at spots on the nose—especially if the muscles of the eye are weak. (3) It is often caused by using one eye for some time to the neglect of the other; as when one eye has been bandaged or shaded for a long time during an attack of inflammation: therefore when a bandage or shade is necessary it should be applied over *both* eyes. (4) The existence of an opaque speck (usually the result of an ulcer) on the sight of one eye. (5) A condition of debility such as is often left after the subsidence of a fever. (6) It may result from a disordered digestion, from the irritation produced in the bowels by worms, or from the irritation of teething. (7) Occasionally it is temporarily produced by fright or passion. (8) It may be a symptom of mischief within the head, as when it precedes or accompanies inflammation of the brain (p. 333), or convulsions (p. 339); so also when it is accompanied by falling of one or both eyelids and extreme drowsiness. (9) Lastly a child may be born with a squint.

Treatment.—This of course must have reference to the supposed cause. Advice as to measures calculated to remove many of the causes specified above, will be found in other parts of the book, under their respective headings. Such devices for strengthening the weak eye and thereby removing the squint, as bandaging the sound eye, sticking patches of black plaster in such parts of the face as to cause the squinting eye constantly to turn in an opposite direction to look at them, and so forth, have been tried over and over again, but without giving much encouragement. If the squint has only existed for a few weeks, much may be often done (especially if it is associated with a debilitated condition of health) by measures calculated to improve the general health. Let the child put away his books and pictures, and spend much of his time in active exercise in the open air of the country or seaside; give him a nourish-

ing digestible diet and plenty of rest. Douches of cold water to the affected eye often do good. The bowels may be regulated, if necessary, by some gentle laxative (p. 161), and a tonic such as Prescr. 29 is often beneficial to weakly children.

But if the squint is not of very recent date, and if it is continuous, no cure can be expected except from operation.

The operation is simple, safe, and comparatively trivial, and no mother need dread it for her child. It consists in dividing the slender muscle that is drawing the eye on one side. In order to ensure perfect immobility of the eye during operation, and to avoid the fright and resistance which the child would probably show, as well as to spare the pain, most surgeons prefer to put the patient under the influence of chloroform. Children nearly always take this well. The slight wound made, rapidly heals, and the improvement is frequently at once obvious.

Section II.—Hare-Lip.

This deformity, with which of course the child is born, consists in a cleft or fissure of the upper lip, usually a little on the left side of the middle line. If there are two clefts in the lip, as there sometimes are,—one on each side,—it is called a case of Double Hare-lip. Sometimes not only is the fleshy substance of the lip fissured, but also the jaw beneath it; and if this happens in a case of Double Hare-lip, the fissure often extends away back into the palate, causing cleft-palate and hare-lip to be united in the same patient.

There is no cure for this deformity except by operation.

The only point to be considered is the best age at which the operation can be performed. It may be stated as a general rule that it should be done *early*, at some period perhaps, between three and six months after the birth of the

child. If it is left later than this, we begin to get on towards the critical time of teething, during which operation would be imprudent; time is allowed for distortion of the features to develop itself; every month of subsequent delay will add to the suffering and terror of the infant under operation, as he grows older and more intelligent, and to the resistance that he will make to any examination of, or interference with, the affected part; moreover it very frequently happens that the nutrition and thriving of the child are seriously interfered with, by reason of the difficulty that this deformity causes in sucking, and in retaining the milk in the mouth.

A mother should know that if this latter condition exists in her infant, no age is too early for operation: the earlier it is done the better, for if it is long postponed, the child wastes away from mere starvation, and becomes daily weaker, and less and less fit to undergo the necessary means of cure. Very many cases are on record that have been successfully operated upon within the first week from birth; several during the first day, and some even during the first six hours. It is most unwise to allow more than two years to elapse, except for the most cogent reasons, before the case is confided to the surgeon's hands.

The operation is a perfectly safe one, but it is necessary as well as humane to give the little patient chloroform. The child usually takes the breast or bottle very shortly after operation, with eagerness: and the mere act of sucking favours the chances of its being successful.

Section III.—Cleft-Palate.

This deformity consists in the palate, or roof of the mouth, being more or less deeply cleft in the middle line, from behind forwards.

It is caused by an arrest in the development of the structure before the infant's birth.

Those afflicted with it are unable to articulate properly, and sometimes cannot make themselves understood except by their own relatives. They, moreover, frequently have some difficulty in swallowing, from the passing of liquids through the cleft in the palate and out through the nose.

Anyone who will take the trouble to pass his finger along the roof of his mouth will find, after it has travelled backwards about an inch and a half, that the hard bony surface stops, and that the back part of the palate is soft and fleshy. Now, the palate may be cleft merely through the soft part, or more deeply through the soft and into the hard part: the latter case presenting by far the greatest obstacles to cure by operation.

There is no method of cure but operation; and in cases where both hard and soft palate are cleft, many surgeons prefer to perform two operations, closing first one, and then, when that has healed, the other. The operation is a tedious and troublesome one, both to endure and to perform, but it is perfectly safe.

The age at which operation should be undertaken must be decided by the circumstances of the case, but it should be *either* in early childhood (between two and three years old), *or* at puberty (between twelve and fifteen years). The respective advantages and disadvantages which operation at each of these periods offer, are somewhat thus. If the patient is operated on in childhood, an immense gain results by the cleft being closed before articulation and speech commence; and in those cases where the passage of liquid food through the nose threatens to imperil life by starvation, the danger is averted.

On the other hand, difficulties arise from the intractability of children at this early age, and it is probable that

the delicacy of the structures operated upon, renders perfect success less secure than in an older person. If the operation is deferred till puberty, the patient is at an age to understand the surgeon, and to endeavour to assist him by carrying out all his instructions; the parts involved, also, are firmer and more apt to lend themselves to the purposes of the surgeon: but, on the other hand, the patient has now acquired the habit of imperfect and unintelligible articulation, and even if the cleft is completely closed, it will be long before he will learn to speak distinctly, if, indeed, he ever does.

CHAPTER XI.

SECTION I.—ELONGATION OF THE UVULA.

THE uvula is that little tongue of flesh that, in opening the mouth wide, we see hanging from the extreme back of the palate in the middle line.

It often happens in children of a delicate constitution, and who are above seven or eight years of age, that this little body becomes enlarged and elongated, dangling down on to the root of the tongue, and keeping the sensitive parts beneath in a continual state of irritation. It produces an incessant short cough, attended by but little expectoration,—a tickling cough that seems to obtain no relief, and that *can* obtain none until the cause is removed.

It is not a common affection of *young* children.

Management.—This can only be undertaken by a medical man. If the enlargement does not disappear under the tonic remedies and invigorating regimen with which he will probably treat the case, nor yet under the application to the part of strong astringents, nothing will remain but the necessity of having a small part of the offending member snipped off. The symptoms are almost invariably removed by this proceeding. It is safe, simple, comparatively painless, and efficacious.

SECTION II.—ENLARGEMENT OF THE GLANDS.

Enlarged glands are most commonly met with in the neck and at the angle of the jaw,—"the kernels of his ears

have come down," is the mysterious announcement of the nurses,—though they may sometimes occur in other situations in the body, as in the armpits or groin.

Causes.— *Predisposing Cause.*— Their appearance is most frequently symptomatic of the existence of a scrofulous or tubercular condition of the system (see pp. 318 and 325); indeed this is, perhaps, the commonest and the earliest indication of the presence of one of these diseased conditions that we observe.

Exciting Causes.—The irritation attendant on the latter stages of teething will often occasion slight enlargement of the glands, but it seldom proceeds to any great extent in children under five or six years old. After this age, from exposure to cold, after an attack of measles or any sort of fever, from the irritation of a bad tooth, or an inflamed ear, and often without any assignable cause, the glands of the neck will swell up.

Course of the Complaint.—An enlarged gland is felt as a hard rounded body under the skin, slightly moveable by the finger; sometimes the swollen glands are isolated, at others they occur in a string or cluster. They are usually rather painful and tender at first, though not always.

A gland may become enlarged and may continue so for some time without any change, but it mostly happens that it pursues one of two courses; either it gradually dwindles to its original size, when it is no longer felt, or more commonly, it proceeds to inflame. In the latter case, it becomes adherent to the skin that previously could be moved over it; it reddens, gathers, and ultimately (if not opened by the surgeon) ulcerates and bursts, discharging a thin, flaky, pale sort of matter. It is *possible* that the abscess, having discharged, may contract and heal, leaving the spot not much the worse for its inroad: but it is *probable* that

the diseased gland will continue to discharge its thin matter through an irregular, ulcerated aperture for some time; it may also involve adjacent glands in the same mischief, forming a wearisome and painful succession of abscesses, which only heal—when they do heal—with difficulty, leaving disfiguring scars that seam the patient's neck for life.

Management.—In nine cases out of ten of this complaint, it is to be borne in mind that the malady to be dealt with is essentially struma, or tubercular disease. Therefore, for all advice on the care or improvement of the health, which it is absolutely necessary should be attended to, I will refer my readers to that which is given in pp. 319 to 324. If the services of a medical man cannot be obtained, it may often be right to administer some mild preparation of iron, such as the citrate of iron wine, or (especially) the syrup of the iodide or the superphosphate of iron (see p. 175), together with cod-liver oil (see p. 321).

Though our chief reliance must be on measures directed to the improvement of the general health, something often requires to be done to the part affected. Do not be too busy with remedies. If the enlargement is very recent and the glands painful and tender, fomentation by means of a soft sponge and hot water will probably do good; the parts must afterwards be well protected by flannel or cotton-wool. Indeed, it is well that swollen glands in any stage of the disorder should be constantly protected by a good pad of cotton-wool, covered externally with a piece of oiled silk. In many cases the application of this alone is sufficient local treatment.

If an enlarged gland is not very recent and not tender or painful, it will often lessen or disappear if it is painted daily with tincture of iodine; but no medical man would ever think of applying anything of this kind to

a tender or painful gland. If a swollen gland is obviously gathering, its progress may perhaps be facilitated by hot fomentations and an occasional linseed poultice; but, as the surgeon will tell the mother, the gathering should not be allowed to break spontaneously, or ulceration of the aperture will ensue and almost inevitable scarring of the neck. When the proper time arrives, the surgeon will propose to open the little abscess—a proceeding that the mother must on no account object to—and he will probably do it with a very fine, narrow-bladed instrument; that will sufficiently evacuate the matter, but with hardly any pain to the child or chance of a scar resulting.

Abscesses of glands should not be poulticed after they have discharged; for the first few hours apply a pad of lint wetted with warm water and changed frequently, and after this, either a piece of dry lint covered with oiled silk, or a piece of lint spread with oxide of zinc ointment and changed when requisite.

CHAPTER XII.

ON DISEASE OF THE SPINE AND OF THE HIP JOINT.

SECTION I.—DISEASE OF THE HIP JOINT.

Nature of the Disease.—The spine, as everyone knows, is not one bone, but is made up of a number of small bones, or vertebræ, very firmly bound together by ligaments and strengthened by muscles, and each perforated by a part of the long tubular cavity in which the spinal cord (the great centre of motion) is securely lodged. Now these bones and the joints between them are liable to a serious form of strumous disease; a low kind of inflammation is set up, which gradually corrodes and breaks down the substance of the bones, and ulcerates the joints, and destroys their mobility.

The bone being partially eaten away in one place by disease, and the ligaments destroyed, the weight of the head and shoulders bend the upper part of the spine forwards in a sharp angle,* occasioning the deformity known to doctors as *angular curvature*, or popularly as hump-back. When the upper part of the spine has fallen forward in this way, the diseased process often seems to cease, and the bones become hardened and immoveably locked into their new and distorted position, whilst more or less deformity is the permanent result. But things may take a worse turn

* Just as a tough green stick would bend sharply at the point where a deep notch was cut in one side of it.

than this. The upper part of the spine may bend forward on the lower so sharply and so suddenly, that the pressure on the spinal cord, contained in its bony channel, now so contorted, occasionally produces paralysis of the lower part of the body. This, however, is rare. The same result, and even death, may ensue from other accidents of the disease.

NOTICE.

Readers are requested to be so good as to correct the following Error:—

Page 560. Section I. *Instead* of the heading "Disease of the Hip Joint," *read* "Disease of the Spine."

To face page 500.—Sig. 2 N.

side, that they will fail to recover themselves at all, and the spine will consequently bend to that side; and unless early measures are taken to prevent it, will become set in that deformed position, producing what is called by doctors *lateral curvature.* The moral of all this will appear shortly.

Lateral curvature may also occur from simple weakness and inability of the spinal muscles and ligaments to adequately sustain the weight of the head and upper part of the body. Anatomists tell us that even in the best formed amongst us, the spine, in the region of the back, makes a *very slight* curve to the right side and back again to the middle line. The weight applied vertically to this ineffi-

ciently supported curve, makes it bend still more, even to deformity. Thus it is that the curvature of the spine is usually towards the right side.

Meanwhile it is evident that the condition called *angular curvature* is throughout one of *disease* of the spine; while that spoken of as *lateral curvature*, at any rate at first, is one of weakness or relaxation only.

Causes.—There are two sets of causes, predisposing and exciting. The great predisposing cause of *Angular Curvature*, and frequently of lateral curvature also, is the existence of the strumous constitution (see p. 318). The disease may be excited, or brought on, by a lower state of health than usual, by bad conditions of life, or by a blow or shock to the spine. *Lateral Curvature* is a very common affection among weakly (and often strumous) girls, between the ages of ten and sixteen, who are growing fast. Its predisposing cause is weakness of the muscles and ligaments, and softness of the bones and intermediate cartilages, which are the concomitants of a state of general debility. But the question arises as to what causes the debility; and the answer will often be found on reviewing the patient's conditions of life. Perhaps more exercise and fresh air, and less confinement are needed; perhaps a more generous diet; possibly relief from mental trouble and anxiety. The exciting cause is usually somewhat thus:—a weakly girl, such as has been described, falls constantly into an awkward one-sided position, either from the nature of her occupation, or from mere habit; or it may be that she has to stand a great deal, and in order to relieve her weak and tired muscles she "stands at ease" as soldiers say, which means throwing the weight of the body on to one leg. If a class of girls is kept standing long, by the time school is over, three-quarters of them will be found standing on one leg. In the same way, the undue exercise of one side of the

upper part of the body, to the exclusion of the other, as in carrying a baby, has a distinct power to draw the spine over in a curve to the most used side.

Curvature occasionally also occurs as a consequence of Rickets (see p. 328).

Symptoms.—When the disease is far advanced, the symptoms are so evident that they need no description; but it is not of much use to recognise the symptoms of a disease that has progressed to a point almost past curability. The symptoms of the *early* stage of this malady are those only which need be studied by the mother; the recognition of the approaching mischief in her child is the first and most important step to the prevention of it.

Angular Curvature generally commences with symptoms that point to irritation of, or pressure upon, the spinal cord. The legs are often cold, numbed, and weak, and the child is disinclined to move or exert himself; the bowels are confined, and there is a difficulty sometimes in retaining the water, and at others in passing it. His attitude also is peculiar and distinctive; he carries his body stiffly and rigidly, and if he turns, swings the whole trunk round, from the hips—as if his back had no bend in it. He does not usually complain of pain in the back so long as it is at rest, but if his spine is jarred by a sudden movement, by a false step, or by bumping down into a seat, pain of a more or less severe character is occasioned. If a sponge, squeezed out in *hot* water, is gently pressed upon the spine over a diseased spot, it produces great pain; so does hard pressure, or a tap with a knuckle or finger. If the disease is situated in that part of the spine which corresponds with what we call "the back," it is liable to produce difficulty of breathing; if in the neck, perhaps more or less paralysis of both arms and an unsteadiness in carrying the head, which causes the child to support and steady it with his hands as he moves.

If the disease is advancing, the spine begins manifestly to bend forward upon itself and the back grows more and more deformed; very often twitchings, pain, increased numbness, and irregular action of the lower limbs come on, sometimes followed by paralysis.

FIG. A.—LATERAL CURVATURE OF THE SPINE.—(Adapted from Brodhurst.)

If *Lateral Curvature* is impending, the mother's attention is first attracted by what she will probably call *a growing out*

of one of her daughter's shoulder blades, or she will remark that one side of her bosom stands out more than the other. When she has noticed this much, the mother should then remove her daughter's clothes and cause her to stand up straight and square, with the feet well together, and with the back towards her.

She will then probably see that the spine is curved about its middle, or in its upper third, toward the right side;—curved, indeed, doubly, and somewhat twisted, so as to throw up the right shoulder and right side of the chest unnaturally high, while the left side is proportionally sunken; by the same cause the left hip is made to project, and the right to seem shrunk inwards. These conditions are seen in Fig. A, but reversed; since, in the case which the cut was taken from, the curvature was towards the *left* side, having been caused by habitually carrying a child upon the left arm. The ultimate condition may become one of great deformity.

Management.—(See Note on p. 257.) The management of both kinds of cases—the angular and the lateral curvatures—is, in some respects the same, but in others different. Both are usually the result of impaired health and vitality, a condition which is frequently also connected with a strumous constitution. In both, therefore, this may be dealt with by the same means, viz., a well-arranged and nourishing but digestible diet; the bracing air of a hilly country or of the sea-side; cold water bathing or sponging daily, if possible, either in natural or artificial sea water (see pp. 96, 97); cod-liver oil (p. 321); and iron, especially in the form of Parrish's Chemical Food (p. 175).

The tendency to *Angular Curvature* will have also to be met by *rest*, in the strictest meaning of the term. If the diseased spot (and threatened curvature) is situated in the back—*i.e.*, between the neck and loins—the rest must be

unbroken; but if it is in the neck it must be *absolute*:—rest with even the possibility of movement of the diseased part removed, by so placing sand-bags around the head and neck that the child *cannot* move the part except with great difficulty. "The first care of the surgeon when called upon to attend a case of spinal caries" (disease) "in childhood, or one in which there is good reason for suspecting spinal caries, should be to impress upon the child's parents the

FIG. B.—APPARATUS FOR LATERAL CURVATURE.—(From Erichsen.)

absolute necessity of confinement to bed for a considerable period, an instrument being at the same time applied to take off the weight of the upper part of the body, and to prevent movement of the diseased vertebræ" (or spinal bones). "Neither of these measures is sufficient without the other." *—(Mr. T. Holmes.) The child should lie on a mattress, and not on a feather-bed. The medical man in

* Surgical Treatment of Diseases of Children. London, 2nd ed., p. 542.

attendance, at the earliest time that he considers it safe to do so, will give permission for the child to change from bed to a sitting or reclining posture, but it mus
be attempted without his sanction; the mos
might ensue from unadv

The tendency to *Lat*
Spine must further be

such exercises as would tend to bring
arm of the side opposite to that towards which the curvature inclines. If the case is in anything but its earliest stage, and even then if the child is very weakly, the spine must be relieved from the weight of the upper part of the body by mechanical means. An admirable appliance is now made by all first-rate instrument makers, by wearing which, the weight of the upper part of the body is sustained partly by supports under the arm-pits and partly in other ways, but is all made to fall upon the loins and hips; whilst provision is also made for reducing undue prominence of the shoulder or chest on either side (see fig. B, p. 566).

Prospects of the Case. — These are much more

hopeful in the child, youth, or maiden, than in the adult. Cases of Disease of the Spine in children, that have been so severe as to cause complete paralysis and loss of sensation, have nevertheless frequently recovered both power of motion and capability of feeling. Cases of Weakness of the Spine, or lateral curvature, usually recover if observed and put under medical treatment early.

Section II.—Disease of the Hip-Joint.

Nature of the Disease.—This is another malady in the melancholy category of scrofulous diseases.

It consists in chronic inflammation of the hip-joint, which, beginning slowly and insidiously, usually goes on to ulceration of the cartilages and destruction of the bones of the joint. This sometimes proceeds to such an extent as to form large and exhausting abscesses, or even to dislocation of the joint; whilst it is almost certain to result in more or less permanent shortening of the affected limb.

Causes.—The chief Predisposing Causes are, without doubt, childhood and the existence of the strumous constitution. Out of forty-eight cases noted by Mr. Erichsen, thirty-two were under fifteen years of age: probably the proportion would be higher still if particulars of all cases could be known. Perhaps not in *every* instance, but in nine out of ten, we find the disease coexistent with unmistakable signs of struma or scrofula. The disease is more common among the children of the poor than of the rich, and among those dwelling in towns than in those in the country; but it is quite common enough amongst those of all classes and all parts. The Exciting Cause is often obscure and not easily ascertainable; sometimes it seems to be the effect of too long a walk, a strain of the joint in running or jumping, a fall, or the result of a cold from getting wet.

Symptoms.—The only symptoms that a mother has anything to do with, are those which indicate the commencement of the disease. It is well that she should be able to recognise its insidious approach, and that she should not treat lightly the early signs of its onset, for a month's medical treatment *early*, is worth more than a year's later on; but when her suspicions and fears have been aroused and confirmed, the case is of course confided to the care of the surgeon, and it becomes his business henceforth to watch and interpret its symptoms.

At first, probably, the child will complain of some pain and stiffness in one leg; it is very soon wearied on the least exertion, and becomes rather stiff; after a time he falls more or less lame on that side and the leg drags in walking. After a longer or shorter period he begins to complain of a great deal of pain on the inside of *the knee;* this symptom, together with the others, is very distinctive. Now, if firm pressure is made upon the hip-joint of the affected limb either in front, behind, or at the side—or if, while the leg is straightened and fixed, a smart push upwards is given to the foot, so as to jerk the head of the thighbone against its socket—the child will cry out at the pain caused in the hip-joint, and at the increase of pain at the knee. Together with these symptoms the health usually becomes affected; the child is subject to flushes of fever alternating with periods of chilliness, listlessness, and prostration; his sleep is often broken at nights by pain, and his appetite is usually impaired by feverishness. Of course, long before he had reached this point, the mother would have placed him under her medical man's care, but the concurrence of the above symptoms would afford strong presumptive evidence that he was suffering from incipient disease of the hip-joint.

The progress of the case is usually marked as follows:—the pain sometimes becomes very excruciating—these are usually cases where

there is ulceration of the *cartilages* of the joint; sometimes there is very little pain—these are cases where there is destruction of *bone* only. The affected limb appears to be longer than the sound one; but this is an appearance and not a reality, as may be ascertained by measurement: it is, however, turned outwards, and slightly bent both at the thigh joint and the knee. At a later stage of the disease both these conditions are altered. In only too many instances, the limb becomes actually *shortened*—owing to dislocation or destruction of the head of the thigh bone—whilst it is turned inwards with the knee carried against the lower part of the thigh of the sound leg.

The shortening is often attended by an increase of the pain and by starting of the limb during sleep, and is only too often followed by abscess of the joint.

Prospects of the Case.—There are two questions that the mother will naturally ask her medical man, "Will my child recover? and if so, will he retain any use in his limb?" The surgeon will answer these according to the merits of the case in point, and I will content myself here with such broad generalisations as the experience of the profession has found to hold good in a large average of all cases.

(1) *As to Life.*—"There is hardly any early case of hip-disease which is not curable, *if* the patient can obtain careful nursing, prolonged repose, plenty of fresh air, good diet, and appropriate medical treatment."*—(Mr. T. Holmes.) The chances of recovery are good in proportion as the child and his parents are free from all signs of scrofulous or tubercular tendency or disease; and they are bad in direct ratio as these signs are well marked.

In the later stages of the disease, the occurrence of abscess is unfavourable, and if the suppuration (or formation and discharge of matter) is profuse or prolonged, the condition called hectic fever shows itself and the child dies exhausted. In great numbers of cases life has been saved by operation.

* Work last quoted. Page 444.

As to Utility of the Limb.—Under the most skilful treatment a stiff and immovable hip-joint and a shortened limb are almost always left. But the limb, thanks to the surgeon, is at any rate stiffened in a straight position, and therefore with the aid of certain mechanical appliances can be rendered more useful than would be supposed. When abscess has occurred, however, deformity cannot be avoided; there will be considerable shortening and wasting of the limb, and it will probably be bent in an awkward attitude, and will be entirely useless and even in the way.

Management.—There is but little that a mother can do except under her surgeon's guidance; one thing, however, *is* open to her. Directly her child shows any symptoms that lead her to suspect, even with great uncertainty, that an attack of this disease is imminent, let her at once put that child to bed and keep him at *perfect rest* in the recumbent posture, and even take means to prevent his *moving* the seemingly affected leg, until the doctor has decided that her fears are groundless. Immeasurable after-mischief may often be saved by *early* and *complete* rest. Fomentations to the front of the hip-joint of hot water or of hot poppy-head decoction, may be of temporary use in abating pain and congestion previous to the examination of the child by the surgeon.

In the majority of cases, also, the mother will have reason to remember that her child is suffering from one of the forms of strumous disease; and therefore that the conditions of life and remedial agents spoken of on pp. 318 to 324 as beneficial, may be put in force and had recourse to, subject to the doctor's orders and to the feasibility of each.

CHAPTER XIII.

ON WEAKNESS OF CERTAIN JOINTS.

Section I.—Weak Ankles.

This is a very common affection of weakly and rickety children, and also of heavy infants who are neither particularly weak nor at all rickety, shortly after they have begun to walk.

Causes.—In the former case, it is due to some degree of yielding of the unnaturally soft and pliant bones; and in the latter, to weakness of the muscles and ligaments that support the joints: they are not yet ready to support the weight of the child.

Symptoms.—In the case of a rickety child, more or less bending of the bones of the lower part of the leg will be obvious, especially just above the ankles,—they are curved inwards. At the same time the existence of rickets will probably be obvious in other parts of the body, most likely in the head or the chest (see p. 329 and 330). In the other and commoner form of mere weakness of the ankles, the joints look as if they were swollen; the ankles project outwardly and the feet are turned inwards, and perhaps tilted a little on to their *inner* edge. The child often seems determined to be on his feet, though he stands and walks with some difficulty. This is a condition which need cause but little, if any, uneasiness to a mother, if it occurs in an infant at or about the walking age (though she should always seek medical advice on the subject); but if it is observed in a

child of more advanced years, it is usually symptomatic of a tendency to a serious deformity, classed among the different kinds of *club-foot*, and demanding, of course, immediate surgical treatment.

Management.—(See Note on p. 257.) If the weak ankles are only one manifestation of a generally rickety condition of the system, its management will be included in that which is addressed to the rickets (see p. 331). If it is merely a case of weakness and relaxation of the joints, the child must be prevented from standing and walking until the parts have had time to strengthen and consolidate. Douching them with cold salt-water every morning and evening, with a brisk dry-rub afterwards, will do good; so, also, will the support given by an elastic bandage worn round the ankle, or the application of three or four strips of stout soap plaster, slightly overlapping one another. It is only in very bad cases that recourse to iron supports is requisite, and these should not be applied unless they are pronounced necessary by a medical man. Nature has a stronger curative power than many of us give her credit for.

In cases where the child is not hearty and strong, the use of Parrish's Chemical Food, in doses of half a teaspoonful two or three times a day, for a short time, seems to do good. If the general health is deranged, the correction of it is usually attended by an improvement in the condition of the ankles.

Section II.—Knock-Knee.

This deformity, like the last named, usually arises from children being put upon their feet too early; the limbs yield under a weight that they are not yet prepared to support. It is usually associated with some degree of curvature of the bones of the leg.

In a well-marked case the appearance of the child's legs is represented by the form of the letter X, the thighs bending inwards till the knees touch, and the lower part of the legs and the feet spreading outwards again.

Infants are not born with this malady, nor does it manifest the same tendency to spontaneous recovery that we noticed when speaking of Weak Ankles.

Management.—Nothing can be done for this except under the direction of a surgeon. The sooner it is observed and put under treatment, the more readily and completely will it be cured. The removal of the deformity will probably be attempted by the application of well-padded, light iron splints along the whole length of the outside of the thighs and legs, fixed above to a belt round the waist, and below into the side of the shoe. Each limb is attached to and drawn towards its splint by well-padded straps passed round both, with one of extra breadth and strength round the knee; and so fastened by buckles that the strain upon the joint towards its proper position, may be increased by simply tightening them. The apparatus requires to be worn for many months in order that any good may result.

CHAPTER XIV.

ON RUPTURE, AND PROTRUSION OF THE BOWEL.

SECTION I.—RUPTURE.

Nature of the Disease.—By the word Rupture is here signified a protrusion of a portion of the bowel through some abnormal aperture in the front or sides of the belly.

There are two principal forms of rupture* occurring among children; one is where the bowel protrudes at the navel (the most common form of the complaint), and the other where it protrudes at the innermost and lowest part of the groin on one or both sides; and, in the case of male infants, slips down into and distends the *scrotum*. Whichever variety a child may suffer under, he is usually born with it, or at any rate with so strong a tendency thereto (from weakness of the abdominal wall in the part affected), that the slightest cause, such as crying, coughing, or sneezing, serves to develop it.

Surgical Name.—Hernia. Navel rupture is called *Umbilical Hernia*, and rupture in the groin, *Inguinal Hernia*.

Symptoms.—(1) *Of Navel Rupture.*—Occasionally before, but usually after the separation of the navel string, a little soft, compressible, rounded swelling is seen at the navel that dilates when the child cries, coughs, or sneezes,

* The word *rupture* as applied to the disease when occurring in infants, is not strictly correct; because, as is stated above, they are *born* with the malady, and parts cannot be said to be ruptured that have never been united.

and subsides to a greater or less extent when he is at rest. The circular edge of this opening in the belly is often clearly to be felt. Steady pressure with the finger completely obliterates the swelling, pushing back the little fold of bowel into the abdomen.

(2) *Rupture in the Groin or Inguinal Rupture.*—In this case the mother notices that the *scrotum* of her baby is at times unnaturally distended on one or both sides. Sometimes it is immense, looks transparent and as if blown out with air (as indeed it is), and feels soft and compressible to the fingers; at others, the swelling seems to have vanished altogether or in part.

If the bowel is *up*, or in other words, if the swelling has disappeared, it will usually reappear at once if the child cries, coughs, or strains in any way.

Prospects of the Case.—In neither form of rupture is there usually any danger; but if the inguinal rupture is taken no notice of and allowed gradually to enlarge in size, it *may* so happen that some day the portion of prolapsed bowel may become nipped or twisted (*strangulated* as doctors call it), and then the gravest peril is incurred.

Navel rupture shows a strong tendency towards spontaneous restoration; inguinal rupture, on the contrary, inclines to grow worse rather than better.

Management.—(See Note on p. 257.) (1) *Navel Rupture.*—The bowel must be very gently pushed back into the abdomen and kept there by a pad adapted to the part and constantly worn. Many different sorts of pads are recommended, but I believe none is better than one made by a circular, flat piece of gutta-percha, sheet lead, or ivory, stitched up in two or three thicknesses of fine linen; this pad should be attached to, and kept accurately in position by a broad, elastic bandage. This appliance should be taken off once or twice a day in order both to cleanse the

part and to see if the skin is chafed, but while it is off the nurse should keep her finger upon the aperture.

Some recommend a convex pad of india-rubber, or hard wood, or a cork sewn up in linen; but these, by pressing upon the rim and centre of the opening, tend rather to keep it open and distend it, than to close it.

If no better means are at hand, a tolerably effective appliance may be made by sewing up a florin or a penny piece in linen, and strapping it on to the protruding part with one or two long, broad bands of soap plaster.

Whatever pad or bandage is employed, it must be worn constantly and for some weeks or months to effect a cure.

(2) *Inguinal Rupture.*—If a mother suspects her infant of this complaint, she will not, of course, take any steps in the matter till she has shown him to her medical man, in order that she may be assured that he really is ruptured.* If he *is* ruptured, there is only one person who can cure him, and that is the instrument maker; who by applying to him a well-padded, tightly fitting truss, causes the bowel to remain in its proper place, and the aperture through which it had been accustomed to slip down, gradually to close up.

This measure will have to be taken in any case, but now the question arises,—*when* should it be taken? To this I would reply, *at once* if the child is above four months old,—nay, even if he is rather younger. I have met with many mothers whose infants were thus ruptured, and who have told me (to my astonishment) that they had been advised to delay all curative measures until their child was some months or years older. Such advice I believe to be mistaken. It is, I admit, difficult to adjust an efficient truss to a very young infant;—if it does not fit tightly, the movements of the body displace it and it becomes useless; and

* For want of this precaution, I have known infants who have been carefully fitted with very nice little trusses, in whom no rupture existed.

if it does fit tightly it is apt to chafe and inflame the tender skin,—but though difficult, to perseverance and skill it is quite possible.

If you wait, you allow the time when the rupture is most readily curable to slip away; you leave the infant unprotected during just the period when, by reason of his helplessness and incapability of expressing his wants and sorrows, he is continually crying and struggling, and thereby doing all that can be done to increase the size and seriousness of the rupture.

If you wait, you expose your child to a greater or less extent to the risk of the occurrence of that perilous accident of rupture, spoken of above as strangulation of the bowel.

Rupture in the groin will not "get well of itself." Unless effectual and early measures are taken to cure it, it will probably become permanent; and either operation will ultimately have to be resorted to, or the life-long burden will have to be borne as best it may be.

Section II.—Protrusion of the Bowel.

Nature of the Disease.—It consists in the protrusion from the *anus*, or fundament, of the thickened mucous membrane of the bowel.

Surgical Name.—Prolapsus Ani.

Causes.—A weakened and relaxed condition of the part, such as often occurs in feeble or debilitated children. Habitual constipation, which causes occasional severe and long-continued straining at stool;—especially if existing in a child of weakly constitution or relaxed fibre. Irritation of the bowel, as when a child is suffering from worms, chronic diarrhœa, or disease of the urinary organs.

Symptoms.—These are unmistakeable. After more or less straining, attended or not by an evacuation of the

bowels, the child cries and complains of a dragging and smarting pain at the fundament. On examination of the part, the mother will perceive a protrusion of a ring of red, or purplish, and swollen mucous membrane of variable size. This accident is often accompanied by spasm of the neck of the bladder, and consequent retention of urine, or great pain and difficulty in passing it.

Management.—Sometimes the protrusion slips back spontaneously, but it is not advisable to wait too long for this event, since if it is left down for any great length of time it is apt to get strangled by the *sphincter* muscle (which is that by whose firm contraction the aperture of the fundament is closed and guarded). If this happens it becomes still more swollen and livid, occasions great pain and straining, discharges offensive matter, and, mortifying, comes away altogether. This, however, is a rare accident among children.

The first thing to be done is to replace the protruded bowel. Let the mother (if no surgeon is at hand) well lubricate the swelling with olive oil or any pure grease, and then, casing two or three fingers in a handkerchief or thin soft towel, exercise firm but gentle and continuous pressure upon it in the direction of the anus. Usually, in a moment or two it suddenly slips up. If it does not, use no force, and do not continue unavailing and unskilful efforts, but send for a medical man, if one is within reach. If not, let the child sit over the steam of hot water for a time; this often relaxes the contraction of the muscle closing the orifice and constricting the portion of the bowel that has come down, and allows it to pass up again. After it has passed up, the child should be kept lying down on his side for some time.

The next thing to be done is to consider how the condition that caused it can best be remedied (see note on p. 257). If it arises from worms, chronic diarrhœa,

other source of local irritation, no improvement can be expected while the cause remains. If, as is very usual, it is the result of habitual constipation, the regulation of the bowels by mild aperients (as directed on pp. 458 and 459) and a very moderate diet of unstimulating food, will generally remove it. If it proceeds from debility and relaxation of fibre, cold baths, out-of-door exercise, plain nourishing food, and mild tonics are requisite.

The best tonics are some mild preparation of iron (Parrish's Chemical Food, or Steel Wine, see p. 175) and small doses of quinine,—carefully guarding against their constipating effect. In a case where the bowel is constantly coming down, it might be justifiable and necessary (if no doctor could be got, and if cold hip baths or cold water injections proved useless) to employ an occasional injection of two or three grains of sulphate of iron dissolved in one ounce of cold water. This might be used every day, or every second or third day, according to the obstinacy of the case.

APPENDIX A.

VARIOUS ARTICLES OF DIET FOR INFANTS AND CHILDREN DURING HEALTH AND SICKNESS.

1. Lime-Water.

Slaked lime, ½ oz.; distilled water (or any pure filtered water), 2 pints.

Put the lime into a stoppered bottle with the water, and shake well for two or three minutes. Allow it to stand until the sediment has fallen to the bottom, and then draw off the clear liquid into a well-stoppered *green* glass bottle for use.

2. Arrowroot-Water, Milk, and Cream.

For weakly children with disordered bowels. Boil 2 teaspoonsful (or in severe cases more) of the best arrowroot with 1½ pint of water. Add to this ½ pint of new milk slightly boiled, and 2 tablespoonsful of cream. Give it through the bottle, slightly warmed.

(Recommended first by Dr. Merei, of Manchester.)

3. Arrowroot.

"Mix 2 teaspoonsful of arrowroot smoothly in a basin, with 3 tablespoonsful of cold water, so that it is quite free from lumps. Then pour on ½ pint of boiling milk, and stir well." (Beeton.)

4. Brown and Polson's Corn Flour.

"To 1 dessert-spoonful of Brown and Polson, mixed with a wine-glassful of cold water, add ½ pint of boiling water; stir

then to be pressed out, and the bread, on cooling, will form a thick jelly. Mix a portion of this with sugared milk and water, for use as it is required." (Dr. Churchill.)

11. Gruel.

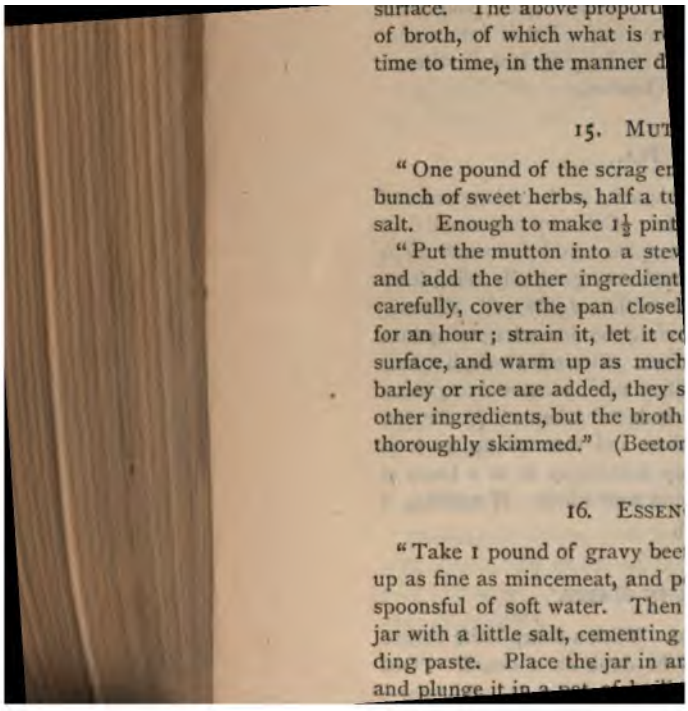
"Mix 1 tablespoonful of patent prepared groats smoothly with 2 tablespoonsful of cold water, in a basin. Then pour on 1 pint of boiling water, stirring all the time. Put it into a very clean saucepan, boil for ten minutes, keeping it well stirred; sweeten and flavour if requisite." (Beeton.)

12. Beef-Tea.

Lean gravy beef, 1 lb.; water, 1 quart; and 1 saltspoonful of salt. Have the meat cut without fat. Cut it up into small dice and put it into a very clean saucepan. Add the water to it *cold*, not hot; put it on the fire and very gradually bring it up to boiling. Then add the salt. Skim thoroughly well. Simmer it gently for half an hour, and carefully remove whatever grease or oily matter may rise to the surface. Strain it through a hair sieve and put it aside to cool. When cold, remove every trace of fat from the surface. Beef-tea is better when made the day before. A little can then be taken and warmed up as it is wanted, simply by placing the cup containing it in a basin of boiling water until the tea is liquid and warm. If needful, a little more salt can then be added.

13. Beef-Tea in Haste.

"Lean beef, 1 lb.; water, 1 pint. With a sharp knife scrape the beef into fibres; this should be done on a board. Place the scraped meat into a delicately clean saucepan, and pour ½ pint of boiling water on it; cover closely and set by the side of the fire for ten minutes, strain into a tea-cup, place it in a basin of ice-cold water, remove all fat from the surface, pour into a warmed cup, and put into another basin of hot water; warm again and serve:—Time, quarter of an hour." (Beeton.)



surface. The above proporti
of broth, of which what is r
time to time, in the manner d

15. Mut

"One pound of the scrag en
bunch of sweet herbs, half a t
salt. Enough to make 1½ pint
"Put the mutton into a stev
and add the other ingredient
carefully, cover the pan closel
for an hour; strain it, let it c
surface, and warm up as much
barley or rice are added, they s
other ingredients, but the broth
thoroughly skimmed." (Beeton

16. Essen

"Take 1 pound of gravy bee
up as fine as mincemeat, and p
spoonsful of soft water. Then
jar with a little salt, cementing
ding paste. Place the jar in an
and plunge it in a pot of b

17. A very Strong Nourishing Broth.

Take of sago, 1½ oz.; cream, ½ pint; the yolks of 5 fresh eggs; strong beef-tea, 1 quart; port wine, 2 glasses; water, ½ pint.

Wash the sago thoroughly in cold water. Then boil it in ½ pint of water till it is thick and completely softened. Add to it the cream (boiling) and also the yolks of the eggs, well beaten up. Mix thoroughly. Add the port wine. Then pour in the beef-tea, also boiling, and stir well together.

18. Raw Meat.

Only to be given under medical direction.

Take a piece of the best rump-steak, rejecting any that has a mottled or greyish appearance, or that is not firm, though tender, and of a good red colour. Scrape it continually with a knife until a large portion of it is reduced to a pulp. If the child who is to take it is old enough to masticate, make a sandwich by putting 1 teaspoonful of it between *very* thin slices of bread, repeated as often as may be necessary. If it is for an infant, give the prescribed quantity with either a little sugar or salt, or any other flavouring that may cause it to be more readily taken.

N.B.—This preparation and the succeeding one are extremely useful in certain cases of exhausting diarrhœa.

19. Raw Meat Juice.

Only to be given under medical direction.

Take a pound of the best gravy meat, or rump-steak, free from all fat. Chop it up into the finest possible mince. Put it into a clean glass or earthen vessel. Add sufficient cold water to the mince to just cover it, and stir it now and then. Let it stand for three or four hours or more. Strain it through a coarse sieve.

The minced meat will be white and the liquid red.

N.B.—The addition, or use, of boiling or very hot water will entirely spoil its efficacy: so will wine or spirit.

20. Suet and Milk.

"Put a tablespoonful of shredded beef suet into ½ pint of fresh milk; warm it sufficiently to completely melt the suet, then skim it, pour it into a *warm* tea-cup, and drink it before it cools."

21. Port Wine Jelly.

"Take of port wine, 1 pint; isinglass, 1 oz.; sugar, 1 oz. Put the isinglass and sugar into ½ pint of water, warm till all is dissolved, then add the wine, strain through muslin, and set to jelly."

(Children will often take port-wine in this form, when they refuse it in every other.)

22. White Wine Whey.

"Put ½ pint of new milk in a saucepan on the fire, and bring it to a boil. As soon as it boils up, pour in a glass of sherry, or more if required (enough to turn the milk completely and make it look clear); and then let it boil up again. Set the saucepan aside till the curd subsides, but do not stir it. In a short time the whey may be poured gently off, a little sifted sugar added, and it is fit to drink. If too strong, add a little boiling water."

23. Rice Milk.

Well wash 3 tablespoonsful of rice, and put it into a saucepan with 1 quart of fresh milk. Simmer it gently until the rice is tender, and stir it from time to time to keep the milk from burning. Sweeten it with pounded loaf sugar. Semolina, tapioca, or macaroni, may all be prepared in the same way.

24. Fever Drink.

Put 2 tablespoonsful (more or less according to taste) of preserved tamarinds into a jug, and pour thereon 1 quart of boiling water. Let it stand till it is cool; strain it through muslin, and it is fit to drink.

If preferred, it may be taken *iced*.

25. Barley Water and Lemon-juice.

"Pearl barley, 1 oz.; boiling water, 1 quart; cold water, ½ pint. Wash the barley in cold water; boil for a quarter of an hour; strain off the water and add 1 quart of fresh boiling water. Boil it until the liquid is reduced to one-half; add the juice of 3 or 4 lemons, and sweeten it. Then strain. It may be additionally flavoured with lemon by simmering a bit of the peel with the barley." (Beeton.)

26. Decoction Blanche.

Take of hartshorn shavings, ½ oz.; the inside of 1 French roll; of water, 3 pints. Mix. Boil down to 2 pints. Sweeten and give it either alone, or with the substitution of one part of milk. (Sometimes broths and beef-tea are found to purge; the above then makes a good substitute for them.)

TABLE OF WEIGHTS AN
PREPARATION OF M
ON

SOLID.

60 grains make 1 drachm.

8 drachms make 1 ounce.

16 ounces make 1 pound.

It is always better to measur
size of a drop is constantly v
being measured by a graduated
rally speaking, a fluid-drachm is
and a fluid-ounce to two "tables
is not nearly accurate enough to
medicines in a very diluted stat
out the doses of medicine for a
graduated medicine glass, wh
druggist.

The age of the child to whom

Suppose the dose for a child—

1 year old is 1 teaspoonful, drachm, minim, or grain.

Then the dose for a child—

2 years old is 1½ teaspoonsful, drachms, minims, or grains.

3	,,	,,	2	,,	,,	,,	,,
4	,,	,,	3	,,	,,	,,	,,
5	,,	,,	3½	,,	,,	,,	,,
6	,,	,,	4	,,	,,	,,	,,
7	,,	,,	4	,,	,,	,,	,,

And for a child between—

7 and 14 years old it is from 4 to 6 teaspoonsful, drachms, minims, or grains, according to age.

(For example:—Suppose the dose of some prescription is stated to be two tablespoonsful for a child twelve years old; but it is required to be used for a child four years old. In what dose is it to be given? On an emergency it might be thus simply calculated; a child twelve years old would take about 6 *teaspoonsful to every* 3 *that should be taken by one four years old,—or, in other words, twice as much; therefore, the dose to be given is* 1 *tablespoonful.)*

This is the nearest approximation that can be given to the relative doses for children of different ages ; and the application of it is sufficiently accurate on an emergency, except in the case of opiates and mercurials, the use of which for children should be guarded by most precise medical directions.

The dose suitable to an infant one year old, must be *lessened* in proportion to age, in order to be adapted to one who is under that age.

SIMPLE PRESCRIPTIONS FOR USE IN EMERGENCY, &c.

The following simple prescriptions are intended for use in those cases only in which the arrival of medical assistance is unavoidably delayed; or for the benefit of those who, though altogether cut off from professional aid, have access to certain simple drugs. In very many instances the prescription here given is not the best remedy, but only the best that can be trusted in the hands of the unskilled.

1. Purgative Biscuits.

Take of jalap, in powder, 60 grains; of flour, 4 oz.; of moist sugar, 6 oz.; of ginger, in powder, 30 grains; and 4 eggs.

Mix, and divide into 12 biscuits. One may be eaten once or twice a day according to the effect desired. (Dr. Tanner.) *For children of three years old and upwards.*

2. Purgative Embrocation.

Take of tincture of aloes, ½ fluid-ounce; of soap liniment, 1 fluid-ounce. Mix. (Dr. Merriman.)

If this is rubbed over the bowels daily for five minutes, it will probably produce regularity of action. The amount of tincture of aloes may be increased up to a half-part of the liniment used, if less will not act. *It is not suitable for a child under two years of age on account of the delicacy of the skin.*

3. Emollient Enema.

Take of laudanum, 1 drop or minim; of thin, smooth, well-boiled starch, ½ fluid-ounce. Mix. Inject it warm (temp. 100° F.) *For an infant one year old.*

One more drop of laudanum, and an extra ½ oz. of starch may be added for every additional year of a child's age.

4. Mustard Poultice.

For children the mustard must not be used alone. Either of the two following forms may be used, according to the effect desired.

Mustard, 2-thirds Flour, 1-third.	or	Mustard, 1-third Linseed meal, 2-thirds.

Uniformly mix the mustard with the flour, or with the linseed; work up the mixture in a scalded basin into a smooth even paste with boiling water.

(Do not use vinegar.) Then spread the paste (which must be sufficiently moist) evenly about ¼ inch thick over a piece of linen rather larger than the size of the poultice required, so as to allow of its edges being folded in over the edges of the poultice

5. Linseed Poultice.

There has been no greater authority on poultices than the humorous surgeon, Abernethy, who seemed to luxuriate in the idea of them. (1) "Scald your basin," says he, "by pouring a little hot water into it, then put a small quantity of finely ground linseed meal into the basin, pour a little hot water on it, and stir it round briskly until you have well incorporated them; add a little more meal and a little more water, then stir it again. Do not let any lumps remain in the basin, but stir the poultice well, and do not be sparing of your trouble. If properly made, it is so well worked together, that you might throw it up to the ceiling, and it would come down again without falling in pieces; it is, in fact, like a pancake. What you do next, is to take as much of it out of the basin as you may require, lay it on a piece of soft linen, let it be about a quarter of an inch thick, and so wide that it may cover the whole of the inflamed part."

When applied, cover it with oiled-silk.

Another and an easier, though perhaps less efficient, way is this:—(2) Fill a muslin bag of the size required, quite full with *crushed linseed;* put it into a basin or dish, and pour boiling water over it; leave it until thoroughly soaked, then squeeze it between towels until no water drips from it. The same poultice may be re-heated for use, two or three times, by pouring boiling water over it again.

required, so as to allow of
margins of the poultice. W
silk.

7. A Co

Take of Goulard's Extract (
2 fluid-drachms ; of spirits of
water (or spring water), 6 fluid-
Linen cloths wetted with this
part affected, and to be change
or dry. *For a child of any age*

8. Bora

Take of powdered borax, 1
water, ½ oz. Mix.
The lotion to be applied from
with a large camel's-hair paint-b

9. A M

Take of chlorate of potash,
fluid-drachms ; of water, fill up
ful to be taken every four hours.

10. A M

Take of spirits of nitrous ethe
of solution of

11. A Mixture.

Take of spirits of nitrous ether (sweet nitre), 1½ fluid-drachm; of chlorate of potash, 15 grains; of simple syrup, 2 fluid-drachms; of water, fill up to 1½ oz. Mix. Two teaspoonsful to be taken every three or four hours. *For a child one year old.*

12. A Laxative Draught.

Take of sweet essence of senna (*Liquor Sennæ Dulcis*), 2 fluid-drachms; of peppermint water, 1 or 2 fluid-drachms. Mix. Let the whole be taken when necessary. *For a child between two and four years old.*

13. A Salutary Fever Drink.

Take of chlorate of potash, 80 grains; of diluted hydrochloric (muriatic) acid,* 1 fluid-drachm; of syrup of roses (or simple syrup), 1 fluid-ounce; of water, 19 fluid-ounces. Mix. This is two days' supply of the drink.

14. A Mixture.

Take of the liquid extract of cinchona (bark), 30 minims; of aromatic spirits of ammonia (sal volatile), 24 minims; of simple syrup, 3 or 4 fluid-drachms; of water, fill up to 1½ oz. Mix. Two teaspoonsful to be taken every three or four hours. *For a child of two or three years old.*

15. A Mixture.

Take of spirits of nitrous ether (sweet nitre), 1 fluid-drachm; of compound tincture of camphor (paregoric), 36 minims; of ipecacuanha wine, 24 minims; of nitrate of potash (nitre), 12 grains; of syrup, 3 fluid-drachms; of water, fill up to 1½ oz. Mix. Two teaspoonsful to be taken every four hours. *For a child one year or* 18 *months old.*

16. Calamine Cerate.

Take of prepared calamine, 7½ oz.; of white wax, 7½ oz.; of olive oil, 1 pint. Mix the oil with the melted wax, then remove

* See footnote to Prescription 55.

them from the fire, and when they first begin to thicken, add the calamine and stir constantly till cool.

(It is best only to make a quarter of the above quantity at a time.)

17. An Effervescing Mixture.

(1.) Take of bicarbonate of potash, 1 drachm ;* of syrup of lemons, 3 fluid-drachms ; of water, 3 fluid-ounces. Mix.

(2.) Also take of citric acid, 42 grains ; of water, 3 fluid-ounces. Mix.

Add one tablespoonful of the potash mixture to one tablespoonful of the acid mixture, and drink it whilst effervescing every three or four hours, or oftener. *For a child from six to ten years old.*

18. A Purgative Draught.

Take of sulphate of magnesia (Epsom salts), 20 grains ; of syrup of ginger, 1 fluid-drachm ; of water, or peppermint water, 3 fluid-drachms. Mix. The whole to be taken when necessary. *For a child five or six years of age.*

19. A Cooling Laxative Draught.

Take of bitartrate of potash (cream of tartar), 30 grains ; of syrup of roses, or simple syrup, 1 fluid-drachm ; of water, 7 fluid-drachms. Mix. Shake it up and let half of it be taken at a time ; the second half a quarter of an hour after the first. *For a child six or seven years old.*

20. An Astringent Mixture.

(*a*) Take of prepared chalk, *or* of aromatic confection, 1 drachm ; of acacia powder, 20 grains ; of tincture of catechu, 36 minims ; of aromatic spirit of ammonia (sal volatile), 24 minims ; of syrup of ginger, 2 fluid-drachms ; of peppermint water, 4 fluid-drachms ; of water, 5 fluid-drachms. Mix. Two teaspoonsful to be taken every three or four hours until the relaxation is abated. *For a child four or five years old.*

* If these mixtures are used in rheumatic fever, double the amount of bicarbonate of potash, of citric acid, and of water in each ; and let the dose be 2 tablespoonsful of each instead of 1.

(*b*) Take of prepared chalk *or* of aromatic confection, 30 grains; of bicarbonate of soda, 12 grains; of acacia powder, 10 grains; of tincture of catechu, 30 minims; of syrup of ginger, 1½ fluid-drachms; of peppermint-water, 3 fluid-drachms; of water, 3 fluid-drachms. Mix. Two teaspoonsful to be taken every three or four hours until the relaxation abates. *For a child one year old.*

21. Quinine Mixture.

Take of quinine, 3 grains; of diluted sulphuric acid,* 6 minims; of syrup of orange-peel (or of simple syrup), 3 fluid-drachms; of water, 9 fluid drachms. Mix. Two teaspoonsful to be taken three times a day, or every four hours, according to the nature of the case. *For a child from four to six years old.*

22. A Mixture.

Take of diluted nitro-hydrochloric acid,† 30 minims; of chlorate of potash, 24 grains; of spirit of chloroform (chloric ether), 24 minims; of spirit of nitrous either (sweet nitre), 1 fluid-drachm; of water, fill up to 3 fluid-ounces. Mix. One tablespoonful to be taken every four or five hours. *For a child of six or seven years old.*

23. Quinine Powders.

Take of quinine, 3 grains; of powdered loaf sugar, 24 grains. Mix. Divide into 6 powders. One of these to be taken two or three times a day. *For a child from four to six years old.*

24. Cod Liver Oil Mixture.

Take of cod liver oil, 2 fluid-ounces; of lime-water, 2 fluid-ounces; of tincture of orange-peel, 3 fluid-drachms. Shake well together. From 2 to 4 or 6 teaspoonsful to be taken two or three times a day, according to age and circumstances.

(Sometimes a drop or two of essence of lemon seems more effectually to cover the taste.)

* Made by diluting 1 part of the strong sulphuric acid with rather more than 11 parts of water.

† Made by mixing—strong nitric acid, 3 parts; strong hydrochloric (muriatic) acid, 4 parts; and water, 25 parts.

25. Freezing Mixtures.

(1) Take of sal ammonia (chloride of ammonium), ½ lb. ; of nitre (nitrate of potash), ½ lb. ; of water, 1 lb. Mix. This causes the thermometer to sink from 50° to 10° F.

(2) Take of nitrate of ammonia, 1 lb. ; of water, 1 lb. This causes the thermometer to sink from 50° to 4° F.

26. Alterative Powder.

Take of grey powder ("mercury with chalk"), 6 grains ; of powdered rhubarb, 9 grains. Mix. Divide into 3 powders ; and give one every three or four hours until the bowels are well relieved. *For a child of two or three years old.*

27. A Powder.

Take of calomel (chloride of mercury), 1 grain ; of powdered ginger, 1 grain ; of powdered loaf sugar, a few grains. Mix. *For a child of two or three years old.*

Beware of giving this frequently.

28. A Draught.

Take of Epsom salts (sulphate of magnesia), 5 grains ; of syrup of ginger, ½ fluid-drachm ; of water, 2 fluid-drachms. Mix. *For a child about two years old.*

29. A Mixture.

Take of Parrish's Chemical Food (or of syrup of superphosphate of iron), 1 fluid-ounce ; of water, 2 fluid-ounces. Mix. Two or three teaspoonsful to be taken three times a day. *For a child of from two to four years old.*

30. A Mixture.

Take of bromide of potassium, 12 grains ; of syrup, 3 fluid-drachms ; of water, fill up to 1½ fluid-ounce. Mix. Two teaspoonsful to be taken twice a day. *For a child of from two to four years old.*

31. A MIXTURE.

Take of tincture of iron, 48 minims; of Epsom salts, 1½ drachm; of simple syrup, ½ fluid-ounce; of water, fill up to 6 fluid-ounces. Two tablespoonsful to be taken three times a day. *For a child from ten to twelve years old.*

32. A DRAUGHT.

Take of tincture of jalap, ½ fluid-drachm; of syrup of ginger, 1 fluid-drachm; of peppermint-water, 4½ fluid-drachms. Mix. Take the whole when necessary. *A purgative draught for a child from ten to twelve years old.*

33. A LOTION.

Take of Goulard's Extract (Liquor Plumbi Diacetatis), 2 fluid-drachms: of tincture of opium, 1 fluid-drachm; of water, fill up to 6 fluid-ounces. Mix. *For a child of any age.*

34. A LOTION.

(*a*) Take of powdered alum, 12 grains (or of sulphate of zinc, 6 grains); of water, 6 fluid-ounces. Dissolve.

Or,

(*b*) Take of best French brandy, 1 fluid-ounce; of water, 6 fluid-ounces. Mix.

35. SOLUTION OF CAUSTIC.

Take of nitrate of silver ("lunar caustic"), 1 grain; of distilled or rain water, 1 fluid-ounce. Dissolve.

36. DILUTED CITRINE OINTMENT.

Take of the nitrate of mercury ointment, 1 drachm; of spermaceti ointment, or of fresh lard, 3 drachms. Rub them well up together, and keep covered from the air.

37. SEIDLITZ POWDERS FOR CHILDREN.

Take of bicarbonate of soda, 10 grains; of tartarated soda, 30 grains. Mix and dissolve in 2 tablespoonsful of water, add-

ing a drop of essence of lemon, and a little simple sy

Also,

Take of tartaric acid, 8 grains. Dissolve in 1 tablespoo of water. Add the two solutions together, and drink wh effervescing.

38. Laxative and Alterative Powder.

Take of powdered rhubarb, ½ oz.; of sulphate of pot ½ oz.; of powdered ginger, ½ drachm. Mix intimately. M up as many powders as required. *Dose:* 10 *grains to* 40 *gra according to the age of the child.*

39. A Mixture.

Take of chlorate of potash, 1 drachm; of spirit of nitr ether (sweet nitre), 2 fluid-drachms; of water, 6 fluid-ounc Dissolve and mix. Two tablespoonsful to be taken every hours. *For a child about twelve years old.*

40. Gregory's Powder.

Take of powdered rhubarb, 2 drachms; of light magnesi drachms; of powdered ginger, 1 drachm. Mix thoroughly, pass through a fine sieve. *Dose: From* 5 *grains to* 20 *gra or more, according to age and effect desired.*

(This is the compound rhubarb powder of the British Ph macopœia.)

41. Calomel and Jalap Powder.

Take of calomel, 1 grain; of powdered jalap, 5 grains; powdered ginger, 2 grains. Mix. *A tolerably active purga for a child of ten or twelve years old. It should be usually lowed after a few hours, by some such draught as Prescr.* 18.

42. A Mixture

Take of tincture of iron, 1 fluid-drachm; of simple syr ½ fluid-ounce; of water, fill up to 6 fluid-ounces. Mix. *Dose a child about twelve years old:* 2 tablespoonsful to be tak

three times a day. *Dose for a child about four years old:* 1 dessert-spoonful three times a day.

(Whilst taking this, constipation should be obviated by the occasional administration of some mild and simple laxative.)

43. An Astringent Gargle.

Take of tannic acid (tannin), 1 drachm; of acid infusion of roses, *or* of water, 6 fluid-ounces. Mix. To be used three or four times a day, as occasion demands.

44. A Mixture.

Take of tincture of perchloride of iron, 42 minims: of chlorate of potash, 24 grains; of syrup 3 fluid-drachms; of water, fill up to 3 fluid-ounces. Mix. One tablespoonful to be taken every four hours. *For a child five or six years old.*

45. A Cough Mixture.

Take of tincture of squills, 30 minims; of sweet spirit of nitre, 1 fluid-drachm; of nitrate of potash, 12 grains; of compound tincture of camphor, 42 minims; of syrup of tolu, 2 fluid-drachms; of water, fill up to 1½ fluid-ounce. Mix. Two teaspoonsful to be taken two or three times a day. *For a child of from two to three years old.* Three teaspoonsful, *for a child of from four to five years old.*

46. A Liniment.

(*a*) Take of strong solution of ammonia ("Liquor Ammoniæ F."), 1 fluid-drachm; of tincture of opium, *or* tincture of belladonna, 2 fluid-drachms; of soap liniment, 13 fluid-drachms. Mix.

Or,

(*b*) Take of belladonna liniment, 1 fluid-ounce; of soap liniment, 1 fluid-ounce. Mix. Label "Poison." A little of the liniment to be rubbed into the part directed two or three times a day.

47. A Mixture.

Take of ipecacuanha wine, 36 minims; of carbonate of ammonia, 4 grains; of simple syrup, 2 fluid-drachms; of water, 9½ fluid-drachms. Mix. Two teaspoonsful to be taken every four hours. *For a child of two years old.*

48. A MIXTURE.

Take of bromide of potassium, 12 grains ; of spirit of ether, 24 minims ; of simple syrup, 2 fluid-drachms ; of water 10 fluid-drachms. Mix. Two teaspoonsful to be taken every four hours, until the symptoms are alleviated. *For a child two or three years old.*

49. A MIXTURE.

Take of powdered alum, 24 grains ; of simple syrup, 2 fluid-drachms ; of water, 10 fluid-drachms. Dissolve the alum in the water, and mix. Two teaspoonsful to be taken every four hours. *For a child two or three years old.*

50. A STRONG EMETIC.

Take of sulphate of copper, in powder (blue vitriol), 2 grains ; of water, 4 fluid-drachms. Dissolve.

Give a fourth part of the above (measured in a glass, as it will deposit copper on a metal spoon) every fifteen minutes, until free vomiting is produced. *For an infant from one to two years old.*

51. A MIXTURE.

Take of carbonate of ammonia, 12 grains ; of tincture of squills, 72 minims ; of chloric ether (spirit of chloroform), 48 minims ; of syrup of tolu, 4 fluid-drachms ; of water, fill up to 3 fluid-ounces. Mix. Two teaspoonsful to be taken every three or four hours. *For a child two or three years old.*

52. A MIXTURE.

Take of liquid extract of cinchona (bark), 30 minims ; of diluted nitric acid,* 12 or 18 minims ; of simple syrup, 3 fluid-drachms ; of water, fill up to 1½ fluid-ounces. Mix. Two teaspoonsful to be taken three times a day. *For a child two or three years old.*

53. A MIXTURE.

Take of bicarbonate of potash, *or* of carbonate of soda, 24 grains ; of aromatic spirit of ammonia (sal volatile), 16 minims;

* Made by adding rather more than 4 parts of water to 1 part of the strong acid.

of syrup of ginger, 1½ fluid-drachm; of peppermint-water, 4 fluid-drachms; of water, fill up to 1 fluid-ounce. Mix. One teaspoonful to be taken two or three times a day, or when necessary. *For an infant of from two to four months old.*

54. A MIXTURE.

Take of diluted nitric acid (see footnote to Prescr. 52), 16 minims; of quinine, 2 grains; of syrup of orange-peel, 2 fluid-drachms; of water, fill up to 1 fluid-ounce. Mix. One teaspoonful to be taken three times a day. *For a child one year old.*

55. A MIXTURE.

Take of diluted hydrochloric acid,* 12 minims; of infusion of cascarilla, 1½ fluid-ounce. Mix. Two teaspoonsful to be taken three times a day. *For a child a year old.*

56. A MIXTURE.

Take of diluted sulphuric acid (see footnote to Prescr. 21), 18 minims; of tincture of catechu, 36 minims; of syrup of ginger, 2 fluid-drachms; of water, 9 fluid-drachms. Mix. Two teaspoonsful to be taken every four hours. *For a child one year old.*

57. A MIXTURE.

Take of castor oil, 1½ fluid-drachm; of acacia powder, ½ drachm; of powdered loaf sugar, ½ drachm; of tincture of opium (*very carefully measured*), 4 drops; of water, 6½ fluid-drachms.

Rub up the oil with the acacia and sugar, add the water little by little, still stirring, and drop in the laudanum cautiously. One teaspoonful to be taken every four hours. *For a child one year old.*

58. A DRAUGHT FOR TAPE WORM.

Take of liquid extract of male fern, from 10 to 20 minims, according to the child's age; of acacia powder, from 20 to 30

* Made by diluting 1 part of strong hydrochloric acid with rather more than 2 parts of water.

grains; of powdered loaf sugar, to taste; of water, from 1 to 2 fluid-ounces, according to the amount of extract used. Rub up the extract with the acacia and the sugar, and add the water little by little. The whole to be taken early in the morning. *For a child from five to ten years old.*

59. An Electuary for Tape-Worm.

Take of powdered kousso, from 20 to 40 grains, according to the age of the child; of clarified honey, or of treacle, enough to conceal the powder, and assist in its being swallowed. Work them well up together. Half to be taken early in the morning, and the remainder six hours afterwards. *For a child of from four to eight years old.*

The infusion of kousso—made by pouring 4 fluid-ounces of boiling water upon ½ oz. of kousso in powder, and letting it stand for some time in a closed vessel—is almost more effectual than the above, but is more disagreeable. *Dose:* 1 to 2 fluid-ounces, according to age.

60. Benzoated Oxide of Zinc Ointment.

"Take of prepared lard, 6 oz.; of gum benzoin, in powder, 1 drachm.

"Melt by a gentle heat for twenty-four hours in a close vessel, then strain through lint, and add of purified oxide of zinc, 1 oz. Well mix, and squeeze through lint." (Bell's formula, as given by Mr. Erasmus Wilson.)

Another form is this:—

Take of oxide of zinc, 80 grains; of fresh lard, 1 oz. Rub them up intimately together.

61. Castor Oil Mixture.

Take of castor oil, 1 oz.; the yolk of 1 egg. Whip these well together and add, of simple syrup, 1 fluid-ounce; of orange-flower water, 1 oz. One teaspoonful of oil is contained in 1 tablespoonful of the mixture.

(N.B.—Any other aromatic water, such as peppermint, cinnamon, or dill-water, will answer as well as the orange-flower water.)

Another is as follows :—

Take of powdered acacia, 3 drachms ; of powdered loaf sugar, 3 drachms ; of oil of peppermint, 4 drops ; of castor oil, 1 fluid-ounce. Rub the acacia, sugar, and oil of peppermint together into a powder ; add about 6 fluid-drachms of water, then the castor oil by degrees, with a little more gum or a little more water, as may be necessary to make a perfect emulsion. Then add water slowly to bring the quantity to 4 fluid-ounces. One tablespoonful of the mixture contains 1 teaspoonful of castor oil. (From Dr. Druitt, quoting from Parrish.)

Half the above quantity, or even less than half, of oil of peppermint, is sufficient when the mixture is used for children.

62. A Liniment.

Take of tincture of opium (laudanum), 2 fluid-drachms ; of camphor liniment, 7 fluid-drachms ; of soap liniment, 7 fluid-drachms. Mix.

63. Alkaline Mixture.

Take of bicarbonate of potash, 1 drachm ; of spirit of nitrous ether (sweet nitre), 2 fluid-drachms ; of simple syrup, 3 fluid-drachms ; of water, fill up to 3 fluid-ounces. Dissolve, and mix. One tablespoonful to be taken two or three times a day. *For a child from six to ten years old.* Two teaspoonsful for a dose, *for a child of from two to four years.*

64. Sulphur Ointment.

Take of sublimed sulphur, 1 oz. ; of fresh lard, 4 oz. Rub them up thoroughly together.

An attempt may be made to cover its unpleasant odour with some scent ; but the scent used must be a strong one.

APPENDIX C.

THE COMPOSITION OF VARIOUS PATENT MEDICINES COMMONLY IN USE.

THE following analyses have been abstracted from various sources, and the source from whence each is derived, or the name of the analyst, is appended in every case.

GODFREY'S CORDIAL.

Aniseed, caraways, and corianders, bruised, of each, 1 oz.; sassafras chips, 9 oz.; water, 6 pints. Simmer down gently to 4 pints, then add 6 lb. of treacle; and when nearly cold, 3 fluid-ounces of tincture of opium (*laudanum*). (Dr. Paris.)

It is frequently found containing much more opium than the proportion stated above.

DALBY'S CARMINATIVE.

Carbonate of magnesia, 1 oz.; tincture of castor, 5 fluid-drachms; tincture of asafœtida, 3 fluid-drachms; oils of aniseed and pennyroyal, of each, 15 minims; oil of nutmeg, 15 minims; *syrup of poppies*, 7 oz.; rectified spirits, 3½ fluid-ounces; peppermint-water, ½ pint. (Cooley's Practical Receipts, edited by Tuson.)

ATKINSON'S INFANT PRESERVATIVE.

Carbonate of magnesia, 6 drachms; white sugar, 2 oz.; oil of aniseed, 20 drops; spirit of sal volatile, 2½ drachms; *laudanum*, 1 drachm; syrup of saffron, 1 oz.; caraway water, to make up 1 pint. (Work last quoted.)

KAYE'S INFANT PRESERVATIVE.

A preparation partaking of the joint properties of Atkinson's Nostrum and Godfrey's Cordial, but more powerful than either. (Work last quoted.)

STOREY'S WORM CAKES.

Take of calomel and cinnabar (sulphide of mercury), of each, 24 grains; powdered jalap, 72 grains; ginger, 60 grains; white sugar, 1½ oz.; syrup, as much as may be sufficient. Mix, and divide into 12 cakes. (Cooley.)

CHING'S WORM LOZENGES.

1. (Yellow.) Saffron, ½ oz.; boiling water, 1 pint; infuse, strain, and add of calomel, 1 lb., and of powdered white sugar, 28 lb. Mix well; make a mass with mucilage of tragacanth, and divide it into 7000 lozenges. Each lozenge contains 1 grain of *calomel.*

2. (Brown.) Calomel, 7 oz.; resinous extract of jalap, 3½ lb.; white sugar, 10 lb.; mucilage of tragacanth, as much as may be sufficient. Mix, and divide into 6125 lozenges. Each lozenge contains ½ grain of calomel and 3½ grains of extract of jalap. One is directed to take from 1 to 6 of the yellow lozenges over night in order to kill the worms, and to follow these, the next morning, while fasting, by the same number of brown ones, to expel them. (Cooley's work, before quoted.)

WARD'S PURGING POWDER.

A mixture of equal parts of jalap and cream of tartar, coloured with a little red bole. (Cooley.)

MORISON'S APERIENT POWDER.

A mixture of nearly equal parts of cream of tartar and lump sugar, flavoured with powdered cassia. (Cooley.)

POOR MAN'S FRIEND (Dr. Roberts').

This is almost identical with the nitric-oxide of mercury ointment of the British Pharmacopœia.

Chlorodyne.

"According to the analysis of Dr. Ogden, J. Collis Browne's Chlorodyne is composed as follows:—Chloroform, 6 drachms; chloric ether, 1 drachm; tincture of capsicum, ½ drachm; oil of peppermint, 2 drops; hydrochlorate of morphia, 8 grains; Scheele's prussic acid, 12 drops; perchloric acid, 20 drops; tincture of Indian hemp, 1 drachm; treacle, 1 drachm."

Thus every drachm, or teaspoonful, of the preparation, must contain rather more than 1 drop of prussic acid, 36 drops of chloroform, and 4-5ths of a grain of morphia.

James's Powder.

This is a good and useful preparation in skilled hands, and has been much used by the profession.

"Tartarised antimony, 1 part; prepared burnt hartshorn and calx of antimony, of each, 5 parts; carefully mixed together, and divided into 21 grain powders." (Dr. Robinson, in Phil. Journ. Pharm.)

Steedman's Powders.

A very careful analysis of these powders has been made for me by Mr. Beaumont J. Grosjean, F.C.S., from which (since his report is too technical for general readers) I abstract the following facts.

A packet of sixteen powders gave an average weight per powder of 2·8 grains (or 2⅘ grains). The powders contained 24 per cent. of *mercury*, in the form of calomel; so that each powder contained about three-quarters of a grain of that drug. The powders contained more than 5 per cent. of moisture. Antimony was not present in them.

Cochrane's Cough Remedy.

This is merely acidulated syrup of poppies. (Cooley.)

McKinsey's Katapotia.

Aloes, 5 oz.; soap, 1½ oz.; beaten up with syrup of saffron and a little essential oil. Divide into pills of 2 grains or 2½ grains each. ("Medical Circular," iv. 86.)

Morison's Pills.

(No. 1 Pills.) Equal parts of aloes and cream of tartar made into a mass with either syrup or mucilage. A mild aperient.

(No. 2 Pills.) Colocynth, 1 part; gamboge, 2 parts; aloes, 3 parts; and cream of tartar, 4 parts; made into a mass with syrup. A strong purgative, often acting with great violence. ("Medical Circular," ii. 9.)

Holloway's Pills and Ointment.

The Pills. "From aloes, 4 parts; jalap, ginger, and myrrh, of each, 2 parts; made into a mass with mucilage, and divided into 2 grain pills."

The Ointment. "In the case of Sillen *v.* Holloway, tried at the Court of Common Pleas in January, 1863, the plaintiff's counsel asserted that, on the ointment being received by the agent in Paris, it was submitted to the authorised Government chemists to be analysed, in accordance with the law of France prohibiting the sale of secret remedies, and was found by them to contain butter, lard, Venice turpentine, white wax, yellow wax, and nothing else." (Cooley's "Cyclopædia of Practical Receipts.")

Norton's Chamomile Pills.

From aqueous extract of aloes, 1 drachm; extract of gentian, 3 drachms; essential oil of chamomiles, 20 drops; divided into 60 pills. ("Anatomy of Quackery.")

Parr's Life Pills.

From aloes, rhubarb, and jalap; extract of gentian, soft soap, liquorice powder, treacle, moist sugar, oil of cloves, oil of caraways, and syrup. ("Medical Circular," ii. 146, &c.)

Dr. Scott's Bilious and Liver Pills.

From compound extract of colocynth, powdered rhubarb, powdered myrrh, soft soap, oil of caraways, and strong syrup of saffron. (Cooley.)

KAYE'S WORSDELL'S PILLS.

Powdered aloes, gamboge, and ginger, equal parts; together with a very small quantity of diaphoretic antimony, beaten into a mass with either syrup or treacle. (Cooley.)

SCOTT'S DROPS.

From wood-soot, 2 oz.; asafœtida, 1 oz.; brandy, or proof spirit, 1 pint. (Cooley.)

A

STATISTICS OF TH :HILDREN.

TABLES COMPILED FROM THE ANNUAL R NERAL FOR THE YEAR 1870.

DISEASES PROVING MOST FATAL TO R OF THEIR FATALITY.

Causes of Death.	Under 5 years.	T u 15	4th year.	5th year.	5th to 10th year.	10th to 15th year.
All causes *	137,066	1	8046	5705	11,044	2680
Convulsions	25,886		558	321	436	81
Atrophy and Debility . .	25,702		246	152	293	169
Diarrhœa	21,415		190	138	226	56
Scarlet Fever . . .	20,705		4809	3853	8540	1959
Bronchitis	17,427		691	374	473	135
Inflammation of Lungs .	14,429		775	430	699	263
Whooping Cough . . .	11,502		777	437	377	17

* The numbers against this heading only refer to all the causes enumerated in this Table, taking no account of causes not mentioned therein. See page 610.

TABLE II.—*(continued.)*

DISEASES COMMON TO CHILDREN, BUT LESS FATAL THAN THOSE OF TABLE I., ARRANGED IN ORDER OF THEIR FATALITY.

Causes of Death.	Under 5 years.	Total under 15 years.	During 1st year.	2nd year.	3rd year.	4th year.	5th year.	5th to 10th year.	10th to 15th year.
Thrush	1201	1201	1155	35	6	3	2	0	0
Defective Nutrition	1129	1145	1079	28	11	8	3	9	7
Inflammation of Larynx	1120	1274	485	298	129	108	100	131	23
Erysipelas	772	840	685	42	18	17	10	34	34
Dropsy	757	1068	364	130	98	96	69	215	96
Jaundice	654	680	591	17	22	17	7	19	7
Child Crowing, or False Croup	526	537	341	135	27	12	11	11	0
Dysentery	291	312	184	56	31	13	7	20	1
Heart Disease, &c.	251	1104	88	41	50	30	42	337	516
Skin Diseases, &c.	243	248	191	30	14	5	3	3	2
Influenza	218	236	150	38	13	10	7	15	3
Obstruction of Bowels	162	219	124	13	8	6	11	28	29
Epilepsy	151	420	50	26	21	27	27	125	144
Inflammation of Mouth	146	148	111	22	9	3	1	2	0
Rickets	119	131	29	54	23	10	3	5	7
Worms, &c.	80	110	7	20	27	14	12	24	6
Paralysis	63	136	13	9	18	18	5	49	24
Malignant Sore Throat	62	108	13	18	11	11	9	31	15
Mumps	58	68	25	16	8	6	3	7	3

TABLE III.

CAUSES OF DEATH TO CHILDREN BY ACCIDENT OR VIOLENCE.

Causes of Death.	Under 5 years.	Total under 15 years.	During 1st year.	2nd year.	3rd year.	4th year.	5th year.	5th to 10th year.	10th to 15th year.
All causes*	3926	5998	1806	693	562	481	384	1145	927
Railways	15	111	0	3	3	2	7	38	58
Mines	3	134	0	1	0	1	1	7	124
Mechanical Injuries—									
A. *Falls*	167	349	33	30	36	39	29	99	83
B. *By machinery*	5	73	0	0	0	3	2	18	50
C. *Other injuries*	351	755	109	75	59	58	50	204	200
Chemical Injuries—									
A. *Burns and Scalds*	1317	1739	107	381	339	274	216	353	69
B. *Poisoned*	79	92	39	15	5	11	9	10	3
C. *Sunstroke*	18	43	2	1	5	3	7	18	7
D. *Other injuries*	2	14	1	0	0	1	0	3	9
Drowned	348	952	27	111	94	71	45	335	269
Suffocated	1147	1176	1063	34	13	8	9	17	12
Strangled	18	18	18	0	0	0	0	0	0
Murder and Infanticide	202	209	200	1	0	0	1	3	4
Manslaughter (*Manner not stated.*)	14	18	9	4	0	0	1	1	3
Accident and Injury (*Not specified.*)	43	108	10	13	6	8	6	31	34
Neglect	95	102	87	4	1	2	1	6	1
Exposure to Cold	18	21	17	0	1	0	0	2	1
Navel Hæmorrhage	84	84	84	0	0	0	0	0	0

* See foot-note on p. 609.

The deaths of children under 15 years of age from all causes of every kind, in England, in the year 1870, were as follows :—

	Males.	Females.	Total of both sexes.
Under 5 years old . . .	114,099	97,595	211,694
Between 5 and 10 years old .	11,903	11,148	23,051
Between 10 and 15 years old .	5,470	5,369	10,839
			245,584

During the same year the number of births was 792,787 ; therefore for almost every three children born, one died before it had attained the age of 15 : or, more correctly,—out of every 13 children 4 perished.

In the year 1867 (a fair type of other years) the average death rate of children under 5 years old was 68 per 1000, against an average death rate during the same year, for persons of all ages, of less than 22 per 1000.

In his paper on the Causes of Infant Mortality (Journ. Stat. Soc.), Dr. Farr enumerates the following as the *chief* causes operating in the countries of Europe :—

1. Economic wants of the population :—lack of all or aught that gives vigour to industry, and increased means of *providing*.
2. The fact that the largest proportion of mothers have no help (or no *skilled* help) in child-birth.
3. Inefficient and hurtful substitutes for mother's milk.
4. The use in many continental countries of the "*Maillot*" or papoose.
5. The maintenance of large standing armies, whereby women are largely caused to work at men's work, to the neglect and detriment of their offspring.
6. Drugging.
7. Want of fresh air and exercise, operating chiefly in large towns.
8. Defective ventilation. The adequate ventilation of schools would lessen the risk of the propagation of zymotic diseases.
9. Want of water, or the use of impure water.

10. Crowding of the population—shut out from sun and wind.
11. Ignorance and drunkenness of the parents. To these I may add one other—
12. The neglect of isolating cases of infectious and contagious disease, and of measures of disinfection.

Very apropos of the third cause above mentioned is the subjoined extract from a letter from Dr. Stark, Registrar-General of Scotland, to Dr. Wm. Farr. It bears chiefly on the reasons of the high mortality from convulsions in England, which disease will be seen (Table I.) to sacrifice more victims annually than any other.

"Discarding all lesser differences in these tables, the striking fact appears, that it is *convulsions* which is the chief cause of the very high proportion of infantile deaths in England as compared with Scotland.

"Thus, in England 35 infants died from convulsions in every 1,000 infants living, but only 6 died in Scotland in every 1,000 from the same cause.

"There is, therefore, something terribly faulty in the present mode of treating infants in England, and there is the most urgent necessity for something being done to arrest this fearful waste of human life; for if the English mortality from convulsions were reduced to the Scottish standard, *Seventeen thousand lives would be annually saved to England!* These 17,000 infants, who annually die in England from convulsions above the Scottish proportion, are truly lives wasted, and their deaths are truly preventible deaths; and the saving of these lives would of itself lower the *total mortality* of infants in England to that of Scotland.

"There cannot be the slightest doubt that the very high mortality among the nursing children of England is due to the fact that they get spoon meat far too early in life, before the stomach of the tender babe can digest anything but the mother's milk. This is indeed the vital difference between the mode of feeding infants in Scotland and in England. As a general rule, no spoon meat of any kind is given to infants in Scotland until nine months from birth are expired, or until the child has cut its front teeth.

"When practising as a physician in Edinburgh, I made many investigations into the causes of convulsions in infants, and in almost every case found that they were caused by spoon meat having been given, and

that the tendency to the convulsions was removed by confining the infant to its mother's milk. From these researches I therefore concluded that the six deaths annually from convulsions in every thousand infants in Scotland could be reduced one half, were the few mothers who do so imprudently feed their children with spoon meat to give up that practice.

"One other remark must be allowed, relative to the above table" (not given here). "In answering your second query I remarked on the greater tendency to deaf-dumbness and blindness in districts of country where the children were suckled too long. I ought also to have added, that the tendency to brain disease, generally, is increased by the same cause, and there is far less of over lactation in England than in Scotland, in consequence of the child being put at so much earlier an age on spoon meat; and the table appears to me to show the danger of over lactation to the child, inasmuch as while in England only 44 die from hydrocephalus" (inflammation of the brain) "in every 10,000 infants, 71 die from the same cause in Scotland."

The operation of the seventh and tenth causes enumerated above is amply proved by the following Table.

MORTALITY OF CHILDREN UNDER FIVE YEARS OLD, IN HEALTHY AND UNHEALTHY DISTRICTS, COMPARED.*

	Number of children living under 5 years.	Years in which the deaths took place.	Number of deaths.	Average annual rate of mortality per cent.
In 30 large town districts . . .	335,809	1851 to 1860 10 years.	338,990	10·09
In 63 healthy country districts . .	130,635	1849 to 1853 5 years.	26,361	4·04

* Abbreviated from a Table by Dr. Farr, in his paper on Mortality of Children.

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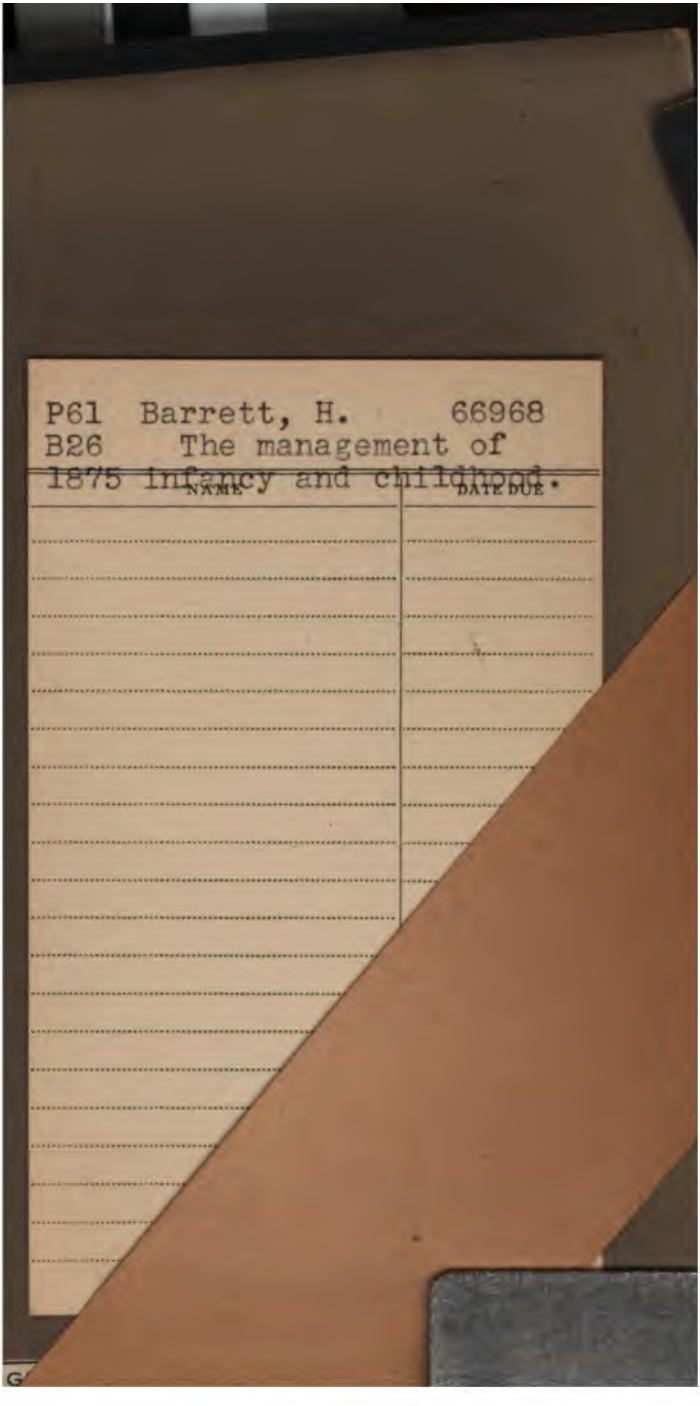
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